Compaq Presario CQ56 Notebook PC and HP G56 Notebook PC

Maintenance and Service Guide

SUMMARY

This guide is a troubleshooting reference used for maintaining and servicing the computer. It provides comprehensive information on identifying computer features, components, and spare parts; troubleshooting computer problems; and performing computer disassembly procedures.

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Safety warning notice

⚠ **WARNING!** To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

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1 Product description

Category	Description	HP G56	Compaq Presario CQ56	HP G56	Compaq Presario CQ56
		AMD	AMD	Intel	Intel
Product name	**Compaq Presario CQ56 Notebook PC**		√		√
	HP G56 Notebook PC	√		√	
Processors	Intel Mobile Celeron 925 processor (2.3 GHz, 1-MB L3 cache, 800 MHz)			√	√
	Intel® Celeron® 900 processor (2.2 GHz)			√	√
	Intel® Pentium® T4500 processor (2.3 GHz)			√	√
	Intel Celeron T3500 processor (2.1 GHz)			√	√
	AMD V-160 processor (2.4 GHz, 512-MB L2 cache, 1066 MHz, 3.2 GT/s)—single-core 25 W	√	√		
	AMD V140 processor (2.3 GHz, 512-MB, L2 cache, 1066 MHz, 3.2 GT/s)—single-core 25 W	√	√		
	AMD Athlon II N370 processor (2.5 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)--dual-core 35 Wdual-core 35 W	√	√		
	AMD Athlon™ II N350 processor (2.4 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 35 W	√	√		
	AMD Athlon II P360 processor (2.3 GHz, 1 MB L2 cache, 3.6 GT/s)—dual-core 25 W	√	√		
	AMD Athlon II P340 processor (2.2 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 25 W	√	√		
	AMD Athlon II P320 processor (2.1 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 25 W	√	√		

Category	Description	HP G56	Compaq Presario CQ56	HP G56	Compaq Presario CQ56
		AMD	AMD	Intel	Intel
Chipset	ATI™ RS880M	√	√		
	Southbridge - SB820	√	√		
	Intel® GL40			√	√
	Southbridge - ICH9m			√	√
Graphics	UMA (integrated) with shared video memory	√	√	√	√
	Support for BD or HD-DVD playback with HD decoder and DX10 (UMA)	√	√	√	√
Panel	**39.6-cm** (15.6-in) HD LED BrightView (1366×768)	√	√	√	√
	39.6-cm (15.6-in) HD CCFL BrightView (1366×768)	√	√	√	√
	16:9 wide aspect ratio	√	√	√	√
Memory	2 customer-accessible/upgradable SODIMM slots	√	√	√	√
	Supports dual-channel memory DDR3, 1066 MHz	√	√		
	Supports dual-channel memory DDR2, 800 MHz			√	√
	Supports up to 8 GB of system memory	√	√	√	√
	Supports the following configurations:				
	• 4096 MB (2048 MB × 2)	√	√	√	√
	• 3072 MB (1024 MB × 1 + 2048 MB × 1)	√	√	√	√
	• 2048 MB (2048 MB × 1)	√	√	√	√
	• 2048 MB (1024 MB × 2)	√	√	√	√
	• 1024 MB (1024 MB × 1)	√	√	√	√
Hard drives					
	Customer accessible	√	√	√	√
	Supports the following **9.5-mm**, **6.35-cm** (2.5-in) SATA hard drives:				
	• 500-GB, 5400-rpm			√	√
	• 320-GB, 7200-rpm	√	√	√	√
	• 250-GB, 7200-rpm	√	√	√	√

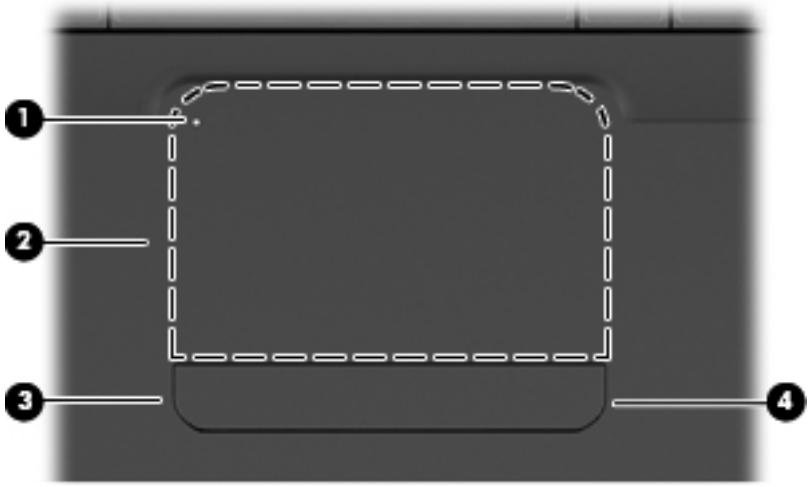
Category	Description	HP G56	Compaq Presario CQ56	HP G56	Compaq Presario CQ56
		AMD	AMD	Intel	Intel
Optical drives	**12.7-mm** (0.5-in) fixed SATA tray load	√	√	√	√
	DVD±RW SuperMulti Double-Layer Drive with LightScribe (select models only)	√	√	√	√
Webcam	**Select models only.** VGA camera, fixed angle with activity light and single analog microphone	√	√	√	√
Microphone	Integrated single analog microphone (for models with no webcam)	√	√	√	√
Audio	High-definition audio supports Microsoft® premium requirements with Presario/HP Altec Lansing speakers	√	√	√	√
Ethernet	Integrated 10/100 network interface card (NIC)	√	√	√	√
Wireless	Integrated wireless local area network (WLAN) options by way of wireless module:				
	2 wireless antennas built into display assembly	√	√	√	√
	Support for the following WLAN formats:				
	• Atheros AR9285 802.11b/g/n 1x1 WiFi adapter	√	√	√	√
	• Broadcom 4313 802.11b/g/n 1x1 adapter	√	√		
	• Broadcom 4313 802.11b/g/n 1x1 WiFi and 2070 Bluetooth® 2.1+EDR combo adapter (BT3.0+HS ready)	√	√	√	√
	• Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR combo adapter (BT3.0+HS ready)	√	√	√	√
	• Realtek RTL8191SE 802.11b/g/n 1x1 WiFi adapter	√	√	√	√
	• Ralink RT5390 802.11b/g/n 1x1 WiFi adapter			√	√
Ports	Audio-in (stereo microphone)	√	√	√	√
	Audio-out (stereo headphone)	√	√	√	√
	RJ-45 (Ethernet)	√	√	√	√

Category	Description	HP G56	Compaq Presario CQ56	HP G56	Compaq Presario CQ56
		AMD	AMD	Intel	Intel
	USB (3)	√	√	√	√
	VGA (Dsub 15-pin) supporting 1600×1200 external resolution at 75 Hz	√	√	√	√
	Smart-pin AC power	√	√	√	√
Keyboard/ pointing devices	Pocket keyboard, **39.62-cm** (15.6-in) with numeric keypad	√	√	√	√
	TouchPad with 2 buttons and 2-way scroll (taps enabled as default)	√	√	√	√
Power requirements	6-cell Li-ion, 2.20-Ah, 47-Wh battery	√	√	√	√
	6-cell Li-ion, 2.55-Ah, 55-Wh battery	√	√	√	√
	65-W AC adapter with localized cable plug support	√	√	√	√
Security	Security cable slot	√	√	√	√
Operating system	**Preinstalled:**				
	Windows® 7 Professional (32- and 64- bit)	√	√	√	√
	Windows 7 Home Premium (32- and 64- bit)	√	√	√	√
	Windows 7 Home Basic (32- and 64- bit)	√	√	√	√
	Windows 7 Starter (32-bit)	√	√	√	√
	SUSE Linux	√	√	v	√
Serviceability	**End-user replaceable parts:**				
	AC adapter	√	√	√	√
	Battery (system)	√	√	√	√
	Hard drive	√	√	√	√
	Memory module	√	√	√	√
	Optical drive	√	√	√	√
	WLAN module	√	√	√	√

2 External component identification

Top

TouchPad



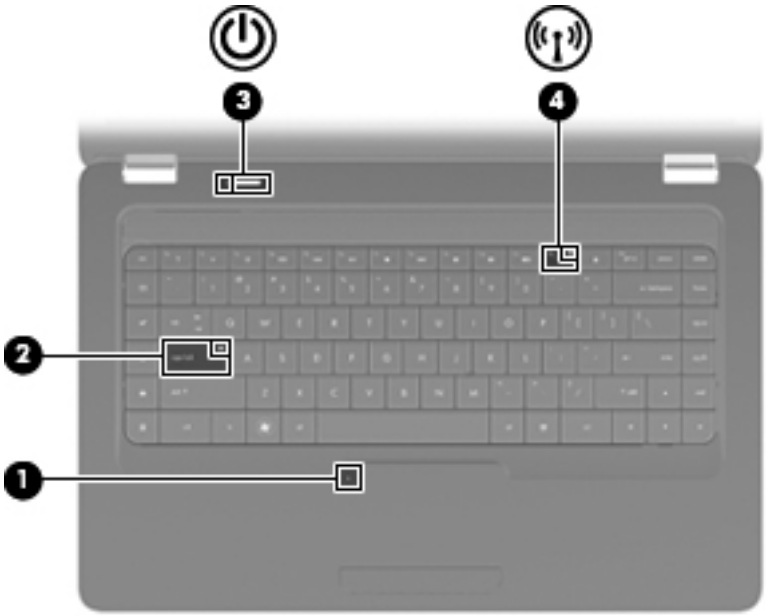
Component		Description
(1)	TouchPad light	To turn the TouchPad on and off, quickly double-tap the TouchPad light. • Off: TouchPad is on. • Amber: TouchPad is off.
(2)	TouchPad zone	Moves the pointer and selects or activates items on the screen.
(3)	Left TouchPad button*	Press the left side of the TouchPad button to execute functions performed by the left button on an external mouse.
(4)	Right TouchPad button*	Press the right side of the TouchPad button to execute functions performed by the right button on an external mouse.

*This table describes factory settings.

There is an unmarked scroll zone inside the right edge of the TouchPad. To scroll up and down using the TouchPad vertical scroll zone, slide your finger up or down inside the right edge of the TouchPad.

Lights

NOTE: Your computer may look slightly different from the illustration in this section.



Component		Description
(1)	TouchPad light	• Off: TouchPad is on. • Amber: TouchPad is off.
(2)	Caps lock light	On: Caps lock is on.
(3)	Power light	• On: The computer is on. • Blinking: The computer is in the Sleep state (Windows) or Suspend state (Linux). • Off: The computer is off or in Hibernation.
(4)	Wireless light	• White: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on. • Amber: All wireless devices are off.

Button and speakers

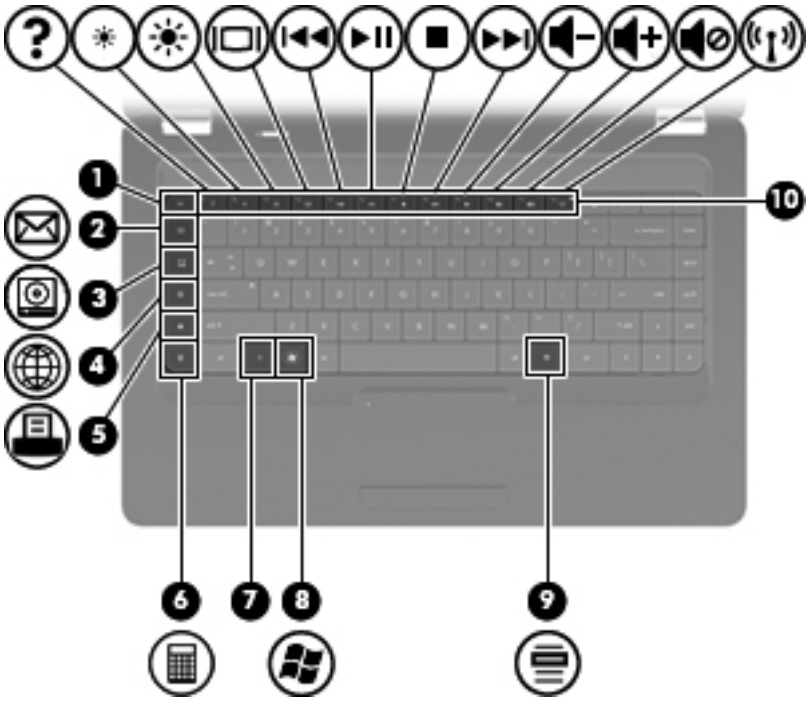
NOTE: Your computer may look slightly different from the illustration in this section.

Component		Description
(1)	Speaker grill	Two integrated speakers produce sound.
(2)	Power button*	• When the computer is off, press the button to turn on the computer. • When the computer is on, press the button briefly to initiate Sleep. • When the computer is in the Sleep state, press the button briefly to exit Sleep. • When the computer is in Hibernation, press the button briefly to exit Hibernation. If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer. To learn more about your power settings: • In Windows, select **Start > Control Panel > System and Security > Power Options** • In Linux, select **Computer > Control Center > System > Power Management**

*This table describes factory settings. For information about changing factory settings, press f1 to open Help and Support (Windows) or Help (Linux).

Keys

NOTE: Your computer may look slightly different from the illustration in this section.

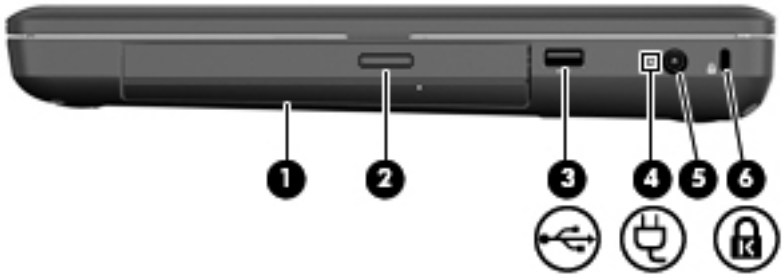


Component		Description
(1)	esc key*	Displays system information when pressed in combination with the fn key.
(2)	Send e-mail key	Opens a new e-mail in your default e-mail client.
(3)	Media application key	Launches CyberLink PowerDVD (Windows) or the default media player (Linux).
(4)	Web browser key	Launches your default web browser.
(5)	Print key	Sends the currently-active document to the default printer.
(6)	Calculator key	Launches the calculator application.
(7)	fn key*	Displays system information when pressed in conjunction with the esc key.
(8)	Windows logo key	Displays the Windows or Linux Start menu (varies by model).
(9)	Windows applications key (varies by model)	Displays a shortcut menu for items where the cursor is positioned.
(10)	Action keys	Execute frequently-used system actions.

*Supported on Windows models only.

Right side

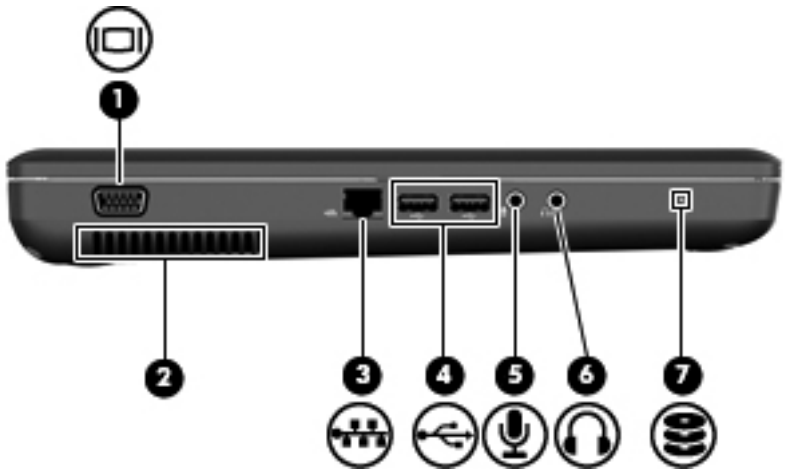
NOTE: Your computer may look slightly different from the illustration in this section.



Component		Description
(1)	Optical drive (select models only)	Reads and writes to an optical disc.
(2)	Optical drive light (select models only)	Blinking: The optical drive is being accessed.
(3)	USB port	Connects an optional USB device.
(4)	AC adapter light	• Blinking white: The computer is in the Sleep state (Windows) or Suspend state (Linux). • White: The computer is connected to external power. • Amber: The computer is charging. • Off: The computer is not connected to external power.
(5)	Power connector	Connects an AC adapter.
(6)	Security cable slot	Attaches an optional security cable to the computer. **NOTE:** The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.

Left side

NOTE: Your computer may look slightly different from the illustration in this section.



Component		Description
(1)	External monitor port	Connects an external VGA monitor or projector.
(2)	Vent	Enables airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(3)	RJ-45 (network) jack	Connects a network cable.
(4)	USB ports (2)	Connect optional USB devices.
(5)	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
(6)	Audio-out (headphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, earbuds, a headset, or television audio. **WARNING!** To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the Regulatory, Safety, and Environmental Notices. **NOTE:** When a device is connected to the headphone jack, the computer speakers are disabled.
(7)	Drive light	On: The hard drive is in use.

Display

Component		Description
(1)	Internal microphone (select models only)	Records sound.
(2)	Webcam (select models only)	Records video and captures still photographs.
(3)	Webcam light (select models only)	On: The webcam is in use.

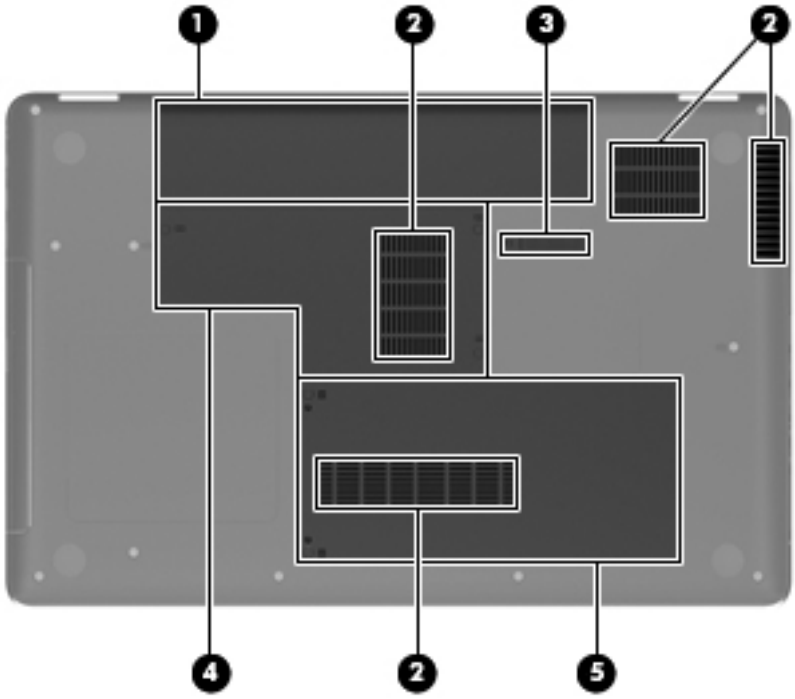
Wireless antennas

Your computer model has two antennas that send and receive signals from one or more wireless devices. These antennas are not visible from the outside of the computer.

NOTE: For optimal transmission, keep the areas immediately around the antennas (shown in the previous illustration) free from obstructions.

To see wireless regulatory notices, refer to the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. These notices are located in Help and Support (Windows) and Help (Linux).

Bottom



Component		Description
(1)	Battery bay	Holds the battery.
(2)	Vents (4)	Enable airflow to cool internal components. **NOTE:** The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(3)	Battery release latch	Releases the battery from the battery bay.
(4)	Memory module compartment	Contains two memory module slots and WLAN slot. **CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact technical support through Help and Support.
(5)	Hard drive bay	Holds the hard drive.

Additional hardware

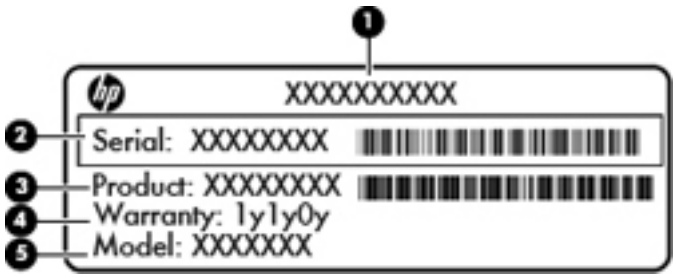
Component		Description
(1)	Power cord*	Connects an AC adapter to an AC outlet.
(2)	AC adapter	Converts AC power to DC power.
(3)	Battery*	Powers the computer when the computer is not plugged into external power.

*Batteries and power cords vary in appearance by region or country.

3 Illustrated parts catalog

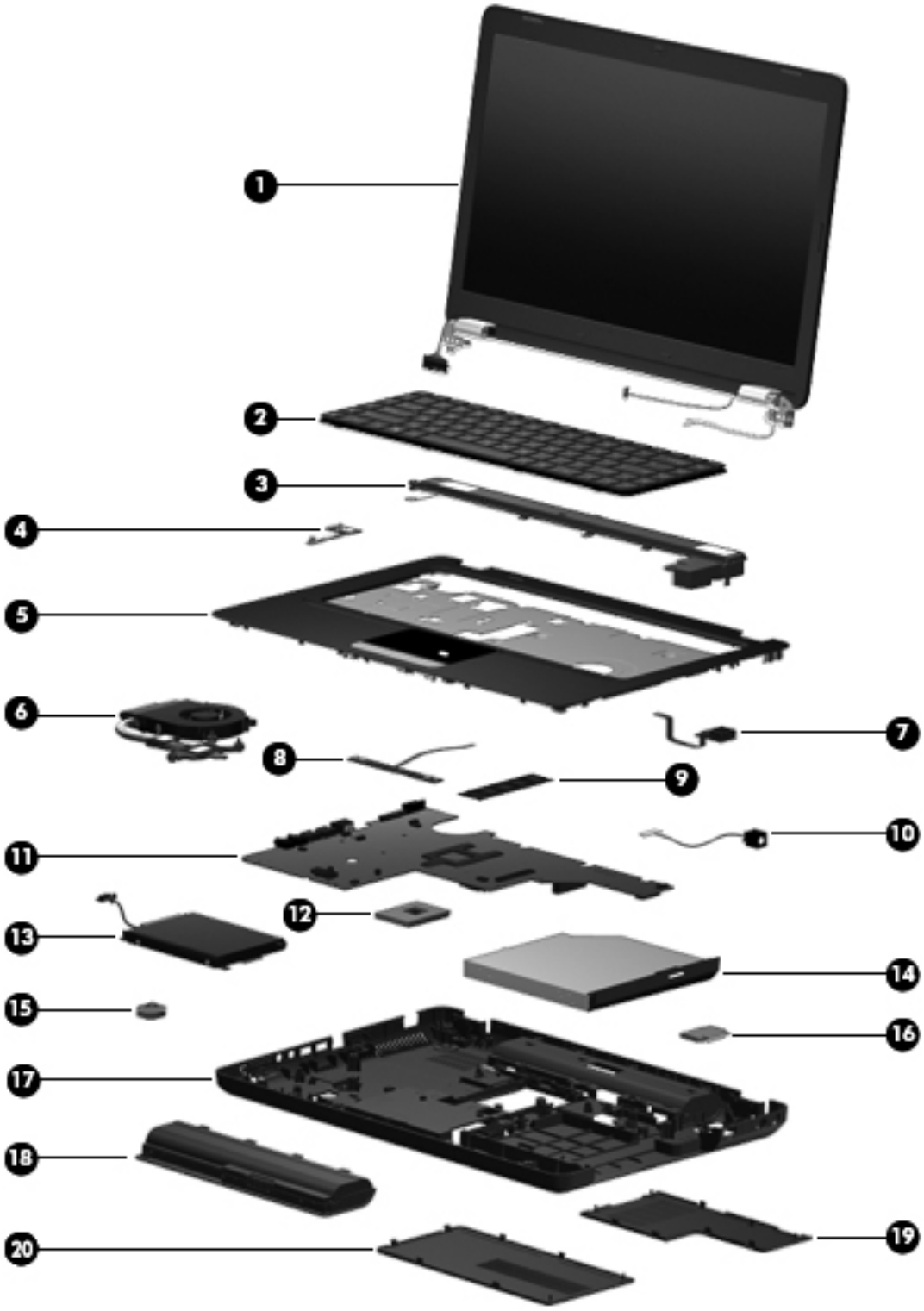
Service tag

When ordering parts or requesting information, provide the computer serial number and model description provided on the service tag.



Component		Description
(1)	Product name	The product name affixed to the front of your computer.
(2)	Serial number (s/n)	An alphanumeric number that is unique to each product.
(3)	Part number/Product number (p/n)	The number that provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.
(4)	Warranty period	The duration of the warranty period for this computer.
(5)	Model description	The alphanumeric identifier you need to locate documents, drivers, and support for your computer.

Computer major components

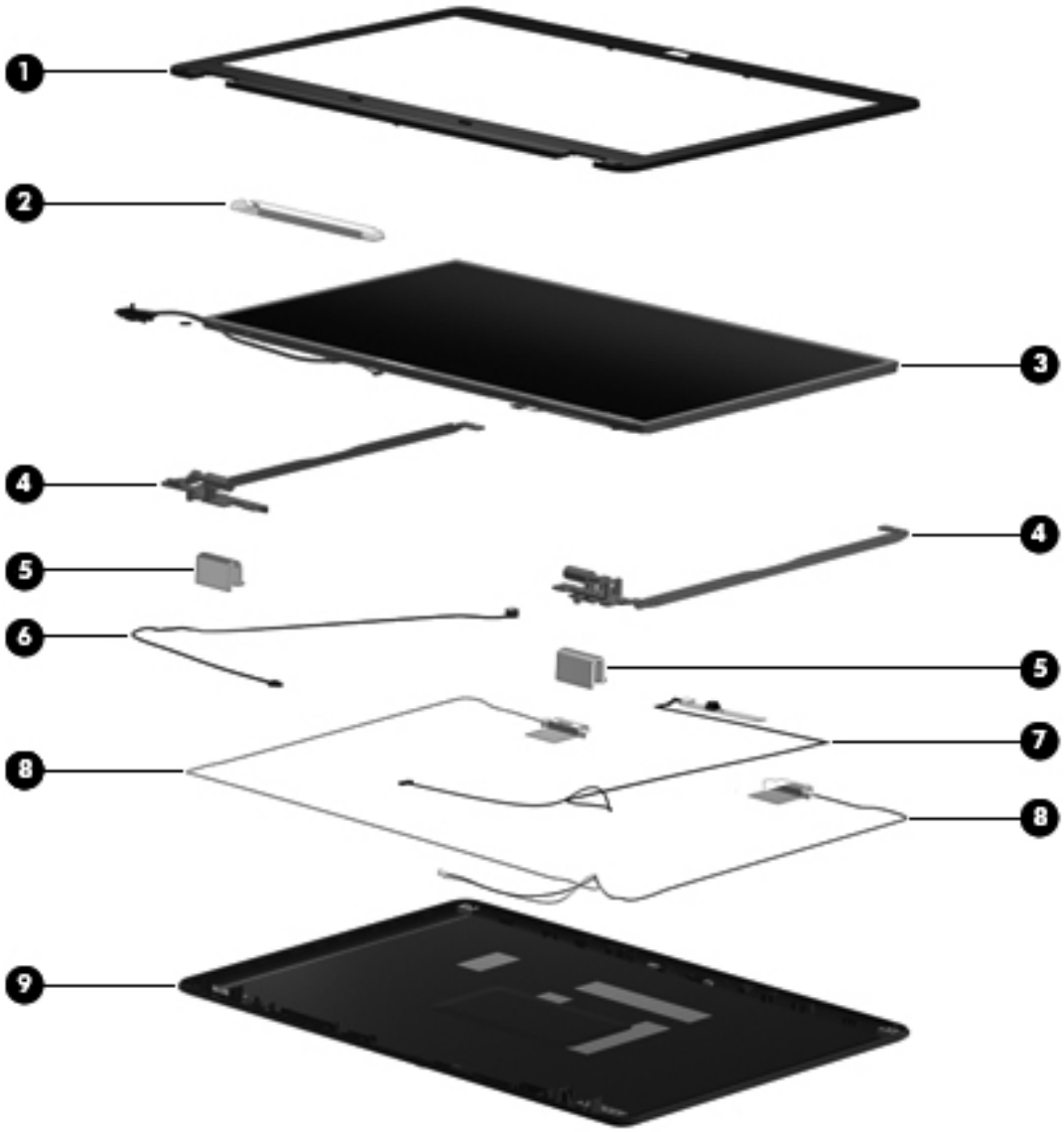


Item	Description	Spare part number
(1)	**Display assembly** **NOTE:** For more display assembly internal component spare part information. See Display assembly components on page 20.	
	• **39.6-cm** (15.6-in) HD LED BrightView with webcam and microphone display assembly for HP G56 computer	620589-001
	• **39.6-cm** (15.6-in) HD LED BrightView with microphone display assembly for HP G56 computer	620588-001
	• **39.6-cm** (15.6-in) HD CCFL BrightView with webcam and microphone display assembly for HP G56 computer	620591-00
	• **39.6-cm** (15.6-in) HD CCFL BrightView with microphone display assembly for HP G56 computer	620590-001
	• **39.6-cm** (15.6-in) HD LED BrightView with webcam and microphone display assembly for Presario CQ56 computer	620585-001
	• **39.6-cm** (15.6-in) HD LED BrightView with microphone display assembly for Presario CQ56 computer	620584-001
	• **39.6-cm** (15.6-in) CCFL LED BrightView with webcam and microphone display assembly for Presario CQ56 computer	620587-001
	• **39.6-cm** (15.6-in) CCFL LED BrightView with microphone display assembly for Presario CQ56 computer	620586-001
(2)	**Keyboard** (includes keyboard cable)	
	• For use in Adriatic countries	595199-BA1
	• For use in Belgium	595199-A41
	• For use in Canada	595199-121
	• For use in Czech Republic	595199-221
	• For use in France	595199-051
	• For use in Germany	595199-041
	• For use in Greece	595199-DJ1
	• For use in Hungry	595199-211
	• For International use	595199-B31
	• For use in Israel	595199-BB1
	• For use in Italy	595199-061
	• For use in Japan	595199-291
	• For use in Latin America	595199–161
	• For use in North America	595199-001
	• For use in Norway	595199-DH1
	• For use in Portugal	595199-131
	• For use in Russia	595199-251
	• For use in Saudi Arabia	595199-171

Item	Description	Spare part number
	• For use in Spain	595199-071
	• For use in Switzerland	595199-BG1
	• For use in Turkey	595199-141
	• For use in United Kingdom	595199-031
(3)	**Speaker assembly** (includes cable)	620607-001
(4)	**Power button board**	595204-001
(5)	**Top cover** (includes TouchPad board)	620605-001
(6)	**Fan/heat sink assembly** (includes replacement thermal material)	
	• For use with AMD processor models	630722-001
	• For use with Intel processor models	606573-001
(7)	**USB board**	595205-001
(8)	**TouchPad button board**	595203-001
(9)	**Memory module**	
	• 1-GB (1066 MHz, DDR2, Intel)	619545-001
	• 2-GB (1066 MHz, DDR2, Intel)	619546-001
	• 1-GB (1333 MHz, DDR3, AMD)	621559-001
	• 2-GB (1333 MHz, DDR3, AMD)	621566-001
(10)	**Power connector** (includes cable)	602743-001
(11)	**System board** (includes replacement thermal material):	
	• PCA UMA system board (Intel)	623909-001
	• PCA UMA system board (AMD)	623915-001
(12)	**Processor** (includes replacement thermal material)	
	• Intel Mobile Celeron 925 processor (2.3 GHz, 1-MB L3 cache, 800 MHz)	636636-001
	• Intel Celeron 900 processor (2.2 GHz)	534419-001
	• Intel Pentium T4500 processor (2.3 GHz)	591880-001
	• Intel Celeron T3500 processor (2.1 GHz)	625830-001
	• AMD V-160 processor (2.4 GHz, 512-MB L2 cache, 1066 MHz, 3.2 GT/s)—single-core 25 W	636634-001
	• AMD V140 processor (2.3 GHz, 512-MB, L2 cache, 1066 MHz, 3.2 GT/s)—single-core 25 W	616333-001
	• AMD Athlon II N370 processor (2.5 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)--dual-core 35 W	634686-001
	• AMD Athlon II N350 processor (2.4 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 35 W	616334-001
	• AMD Athlon II P360 processor (2.3 GHz, 1 MB L2 cache, 3.6 GT/s)—dual-core 25 W	636635-001

Item	Description	Spare part number
	• AMD Athlon II P340 processor (2.2 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 25 W	616343-001
	• AMD Athlon II P320 processor (2.1 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 25 W	594165-001
(13)	**Hard drive** (includes bracket, connector, and screws)	
	• 500-GB, 5400-rpm **9.5-mm, 6.35-cm** (2.5-in)	634932-001
	• 320-GB, 7200-rpm **9.5-mm, 6.35-cm** (2.5-in)	627731-001
	• 250-GB, 7200-rpm **9.5-mm, 6.35-cm** (2.5-in)	599054-001
	• Hard Drive Hardware Kit (not illustrated; includes bracket, connector, and screws)	599057-001
(14)	**Optical drive** (includes bezel and bracket)	
	DVD±RW SuperMulti Double-Layer Drive with LightScribe	620604-001
(15)	**RTC battery** (includes mounting adhesive)	602745-001
(16)	**Wireless (WLAN) module**	
	• Atheros AR9285 802.11b/g/n 1x1 WiFi adapter	605560-005
	• Realtek RTL8191SE 802.11b/g/n 1x1 WiFi adapter	593533–001
	• Broadcom 4313 802.11b/g/n 1x1 WiFi adapter (AMD only)	593836-001
	• Broadcom 4313 802.11b/g/n 1x1 WiFi and 2070 Bluetooth 2.1+EDR combo adapter (BT3.0+HS ready)	600370-001
	• Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR combo adapter (BT3.0+HS ready)	602992-001
	• Ralink RT5390 802.11b/g/n 1x1 WiFi adapter	630703-001
(17)	**Base enclosure**	620606-001
(18)	**Battery**	
	• 6-cell Li-ion, 2.20-Ah, 47-Wh	593553-001
	• 6-cell Li-ion, 2.55-Ah, 55-Wh	593554-001
	Plastics Kit	595200-001
(19)	• Memory module compartment cover	
(20)	• Hard drive cover	
	Rubber Kit (not illustrated; includes four rubber feet)	600849-001

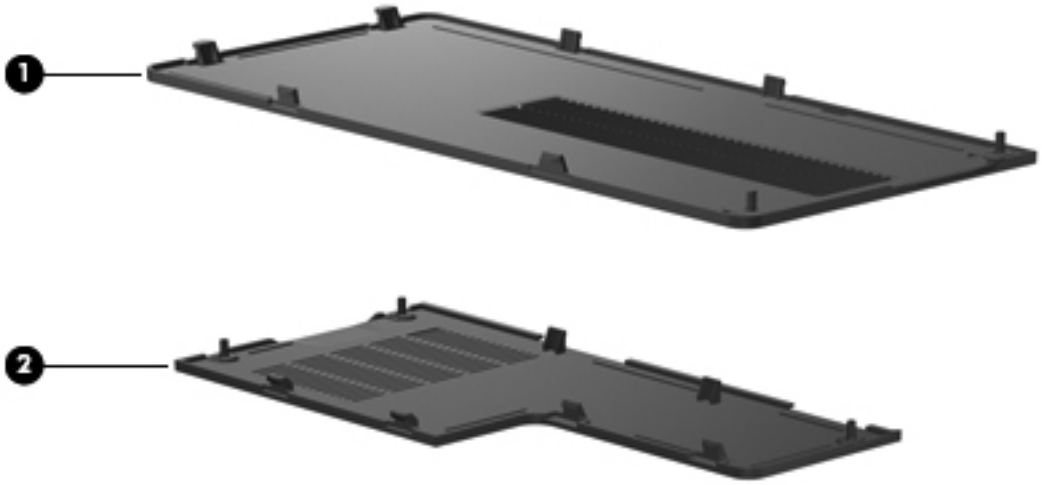
Display assembly components



Item	Description	Spare part number
(1)	**Display bezel**	
	• Presario CQ56 with webcam and microphone modules	620593-001
	• Presario CQ56 with microphone module only	620592-001
	• HP G56 with webcam and microphone modules	620595-001
	• HP G56 with microphone module only	620594-001
(2)	**Display inverter**	616467-001
(3)	**Display panel**	
	39.6-cm (15.6-in) HD, BrightView, LED display panel (includes display panel cable)	595130-001

Item	Description	Spare part number
	39.6-cm (15.6-in) HD, BrightView, CCFL display panel (includes backlight cables)	616450-001
(4)	**Hinge/Bracket Kit** (includes left and right brackets)	
	For use with LED display panels	595195-001
	For use with CCFL display panels	616465-001
(5)	**Display hinge covers**	600650-001
(6)	**Microphone and cable** **NOTE:** The microphone and cable are included in the display back cover kit.	
(7)	**Webcam module (select models only)**	626656-001
(8)	**Display Cable Kit** (includes display cable, wireless antenna module with cable, and webcam cable)	
	• For use with LED display panels	595196-001
	• For use with CCFL display panels	616466-001
(9)	**Display back cover** (includes logo):	
	• For use with HP G56 computer models with LED displays	620601-001
	• For use with Presario CQ56 computer models with LED displays	620600-001
	• For use with HP G56 computer models with CCFL displays	620603-001
	• For use with Presario CQ56 computer models with CCFL displays	620602-001
	Display Screw Kit (not illustrated)	595197-001
	Display Rubber Kit (not illustrated; includes display bezel rubber screw covers)	595198-001

Plastics Kit



Item	Description	Spare part number
	Plastics Kit	595200-001
(1)	Hard drive cover (includes captive screws)	
(2)	Memory module compartment cover (includes captive screw)	

Mass storage devices

Item	Description	Spare part number
(1)	**Optical drive** (12.7 mm, SATA, fixed, includes bezel and bracket)	
	DVD±RW SuperMulti Double-Layer Drive with LightScribe	620604-001
(2)	**Hard drive**	
	• 500-GB, 5400-rpm **9.5-mm, 6.35-cm** (2.5-in)	634932-001
	• 320-GB, 7200-rpm **9.5-mm, 6.35-cm** (2.5-in)	627731-001
	• 250-GB, 7200-rpm **9.5-mm, 6.35-cm** (2.5-in)	599054-001
	Hard Drive Hardware Kit (not illustrated, includes bracket, connector, and screws)	599057-001

Miscellaneous parts

Description	Spare part number
AC adapters	
• 65-W, 3-pin Smart AC adapter for use in all countries and regions except India	609939-001
• 65-W, 3-pin Smart AC adapter for use only in India	609948-001
Power cord, AC, 3 wire, black, 1.83-m	
• For use in Argentina	490371-D01
• For use in Australia	490371-011
• For use in Denmark	490371-081
• For use in Europe	490371-021
• For use in India	490371-D61
• For use in Israel	490371-BB1
• For use in Italy	490371-061
• For use in North America	430971-001
• For use in South Africa	490371-AR1
• For use in Switzerland	490371-111
• For use in United Kingdom and Singapore	490371-031
Cable Kit	595201-001
• Hard drive connector cable	
• Optical drive connector cable	
• Power button cable	
• TouchPad button board cable	
• TouchPad cable	
• USB cable	
• Modem cable	
Rubber Kit	600849-001
Screw Kit	595202-001
• Phillips M2.0x3.0 screws	
• Phillips M2.5x3.0 screws	
• Phillips M2.5x4.0 screws	
• Phillips M2.5x5.0 screws	
• Phillips M2.5x6.5 screws	

Sequential part number listing

Spare part number	Description
490371-001	Power cord for use in North America
490371-001	Power cord for use in Australia
490371-021	Power cord for use in Europe
490371-031	Power cord for use in the United Kingdom and Singapore
490371-061	Power cord for use in Italy
490371-081	Power cord for use in Denmark
490371-111	Power cord for use in Switzerland
490371-AR1	Power cord for use in South Africa
490371-BB1	Power cord for use in Israel
490371-D01	Power cord for use in Argentina
504593-003	Broadcom BCM4312 802.11b/g WiFi adapter for use in Canada, the Cayman Islands, Guam, Puerto Rico, the United States, and the US Virgin Islands
534419-001	Intel Celeron 900 processor (2.2 GHz)
591880-001	Intel Pentium T4500 processor (2.3 GHz)
593533-001	Realtek RTL8191SE 802.11b/g/n 1x1 WiFi adapter
593553-001	Battery, 6-cell, 2.2-Ah, 47-Wh
593554-001	Battery, 6-cell, 2.55-Ah, 55-Wh
593836-001	Broadcom 4313 802.11b/g/n 1x1 WiFi adapter (AMD only)
594165-001	AMD Athlon II P320 processor (2.1 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 25 W
595130-001	**39.6-cm** (15.6-in) HD LED BrightView display panel (includes display panel cable)
595195-001	Hinge/Bracket Kit (for use with LED display panels; includes left and right brackets)
595197-001	Display Screw Kit
595198-001	Display Rubber Kit
595199-001	Keyboard for use in North America (includes keyboard cable)
595199-031	Keyboard for use in the United Kingdom (includes keyboard cable)
595199-041	Keyboard for use in Germany (includes keyboard cable)
595199-051	Keyboard for use in France (includes keyboard cable)
595199-061	Keyboard for use in Italy (includes keyboard cable)
595199-071	Keyboard for use in Spain (includes keyboard cable)
595199-121	Keyboard for use in Canada (includes keyboard cable)
595199-131	Keyboard for use in Portugal (includes keyboard cable)
595199-141	Keyboard for use in Turkey (includes keyboard cable)

Spare part number	Description
595199-161	Keyboard for use in Latin America (includes keyboard cable)
595199-171	Keyboard for use in Saudi Arabia (includes keyboard cable)
595199-211	Keyboard for use in Hungary (includes keyboard cable)
595199-221	Keyboard for use in the Czech Republic (includes keyboard cable)
595199-251	Keyboard for use in Russia (includes keyboard cable)
595199-291	Keyboard for use in Japan (includes keyboard cable)
595199-A41	Keyboard for use in Belgium (includes keyboard cable)
595199-B31	Keyboard for international use (includes keyboard cable)
595199-BA1	Keyboard for use in Adriatic countries (includes keyboard cable)
595199-BB1	Keyboard for use in Israel (includes keyboard cable)
595199-BG1	Keyboard for use in Switzerland (includes keyboard cable)
595199-DH1	Keyboard for use in Norway (includes keyboard cable)
595199-DJ1	Keyboard for use in Greece (includes keyboard cable)
595200-001	Plastics Kit
595196-001	Display Cable Kit for use with LED panels (includes display cable, wireless antenna module with cable, and webcam cable)
595202-001	Screw Kit
595203-001	TouchPad button board with cable
595204-001	Power button board
595205-001	USB board
599054-001	250-GB, 7200-rpm **9.5-mm, 6.35-cm** (2.5-in) hard drive
599057-001	Hard Drive Hardware Kit (includes bracket, connector, and screws)
600370-001	Broadcom 4313 802.11b/g/n 1x1 WiFi and 2070 Bluetooth 2.1+EDR combo adapter (BT3.0+HS ready)
600650-001	Display hinge covers
600849-001	Rubber Kit (includes four rubber feet)
602743-001	Power connector (includes cable)
602745-001	RTC battery
602992-001	Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR combo adapter (BT3.0+HS ready)
605560-005	Atheros AR9285 802.11b/g/n 1x1 WiFi adapter
606573-001	Fan/heat sink assembly (includes replacement thermal material) for use with UMA systems (Intel)
609939-001	65-W, 3-pin Smart AC adapter for use in all countries and regions except India
609948-001	65-W, 3-pin Smart AC adapter for use in India
616333-001	AMD V140 processor (2.3 GHz, 512-MB, L2 cache, 1066 MHz, 3.2 GT/s)—single-core 25 W

Spare part number	Description
616334-001	AMD Athlon II N350 processor (2.4 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 35 W
616343-001	AMD Athlon II P340 processor (2.2 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 25 W
616450-001	**39.6-cm** (15.6-in) HD CCFL BrightView display panel (includes display panel cable)
616465-001	Hinge/Bracket Kit (for use with CCFL display panels; includes left and right brackets)
616466-001	Display Cable Kit for use with CCFL panels (includes display cable, wireless antenna module with cable, and webcam cable)
616467-001	Display inverter
619545-001	1-GB memory module (1066 MHz, DDR2, Intel)
619546-001	2-GB memory module (1066 MHz, DDR2, Intel)
620584-001	**39.6-cm** (15.6-in) HD LED BrightView display assembly with microphone for Presario CQ56 computer
620585-001	**39.6-cm** (15.6-in) HD LED BrightView display assembly with webcam and microphone for Presario CQ56 computer
620586-001	**39.6-cm** (15.6-in) HD CCFL BrightView display assembly with microphone for Presario CQ56 computer
620587-001	**39.6-cm** (15.6-in) HD LED BrightView display assembly with microphone for Presario CQ56 computer
620588-001	**39.6-cm** (15.6-in) HD LED BrightView display assembly with microphone for HP G56 computer
620589-001	**39.6-cm** (15.6-in) HD LED BrightView display assembly with webcam and microphone for HP G56 computer
620590-001	**39.6-cm** (15.6-in) HD CCFL BrightView display assembly with microphone for HP G56 computer
620591-001	**39.6-cm** (15.6-in) HD CCFL BrightView display assembly with webcam and microphone for HP G56 computer
620592-001	Display bezel for use with Presario CQ56 with microphone module only
620593-001	Display bezel for use with Presario CQ56 with webcam and microphone modules
620594-001	Display bezel for use with HP G56 with microphone module only
620595-001	Display bezel for use with HP G56 with webcam and microphone modules
620600-001	Display back cover for use with Presario CQ56 computer models with LED displays (includes logo)
620601-001	Display back cover for use with HP G56 computer models with LED displays (includes logo)
620602-001	Display back cover for use with Presario CQ56 computer models with CCFL displays (includes logo)
620603-001	Display back cover for use with HP G56 computer models with CCFL displays (includes logo)
620604-001	DVD±RW SuperMulti Double-Layer Drive with LightScribe
620605-001	Top cover (includes TouchPad board)
620606-001	Base enclosure
620607-001	Speaker assembly (includes cable)

Spare part number	Description
621559-001	1-GB memory module (1333-MHz, DDR3, AMD)
621566-001	2-GB memory module (1333-MHz, DDR3, AMD)
623909-001	PCA UMA system board (Intel)
623915-001	PCA UMA system board (AMD)
625830-001	Intel Celeron T3500 processor (2.1 GHz)
626656-001	Webcam module (select models only)
627731-001	320-GB, 7200-rpm **9.5-mm, 6.35-cm** (2.5-in) hard drive
630703-001	Ralink RT5390 802.11b/g/n 1x1 WiFi adapter
630722-001	Fan/heat sink assembly (includes replacement thermal material) for use with UMA systems (AMD)
634686-001	AMD Athlon II N370 processor (2.5 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)--dual-core 35 W
634932-001	500-GB, 5400-rpm **9.5-mm, 6.35-cm** (2.5-in) hard drive
636634-001	AMD V-160 processor (2.4 GHz, 512-MB L2 cache, 1066 MHz, 3.2 GT/s--single-core 25
636635-001	AMD Athlon II P360 processor (2.3 GHz, 1 MB L2 cache, 3.6 GT/s)--dual-core 25 W
636636-001	Intel Mobile Celeron 925 processor (2.3 GHz, 1-MB L3 cache, 800 MHz)

4 Removal and replacement procedures

Preliminary replacement requirements

Tools required

You will need the following tools to complete the removal and replacement procedures:

- Flat-bladed screwdriver
- Magnetic screwdriver
- Phillips P0 screwdriver

Service considerations

Before disassembly or assembly procedures, review and adhere to all service considerations.

NOTE: As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic parts

CAUTION: Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and connectors

△ **CAUTION:** When servicing the computer, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

Drive handling

△ **CAUTION:** Drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:

Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.

Handle drives on surfaces covered with at least one inch of shock-proof foam.

Avoid dropping drives from any height onto any surface.

After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.

Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package “FRAGILE.”

Grounding guidelines

Electrostatic discharge damage

Electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage might have occurred.

An electronic device exposed to ESD might not be affected at all and can work perfectly throughout a normal cycle. Or the device might function normally for a while, then degrade in the internal layers, reducing its life expectancy.

△ **CAUTION:** To prevent damage to the computer when removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

Use nonmagnetic tools.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

△ **CAUTION:** A product can be degraded by as little as 700 V.

Typical electrostatic voltage levels

	Relative humidity		
Event	**10%**	**40%**	**55%**
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

Equipment guidelines

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

The following table lists the shielding protection provided by antistatic bags and floor mats.

Material	Use	Voltage protection level
Antistatic plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

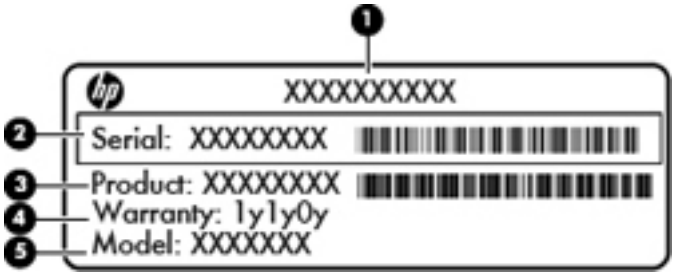
Component replacement procedures

This chapter provides removal and replacement procedures.

There are as many as 67 screws, in 10 different sizes, that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Service tag

When you order parts or request information, provide the computer serial number and model number provided on the service tag, located inside the battery bay.

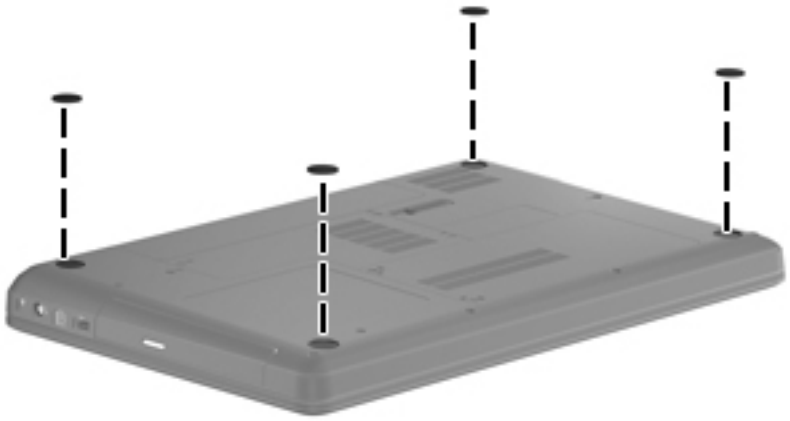


	Component	Description
(1)	Part number	The number that provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.
(2)	Serial number	An alphanumeric number that is unique to each product.
(3)	Product information	The product name affixed to the front of your computer.
(4)	Warranty period	The duration of the warranty period for this computer.
(5)	Model description	The alphanumeric identifier you need to locate documents, drivers, and support for your computer.

Computer feet

Description	Spare part number
Rubber Kit (includes computer feet)	600849-001

The computer feet are adhesive-backed rubber pads. The feet attach to the base enclosure in the locations illustrated below.



Battery

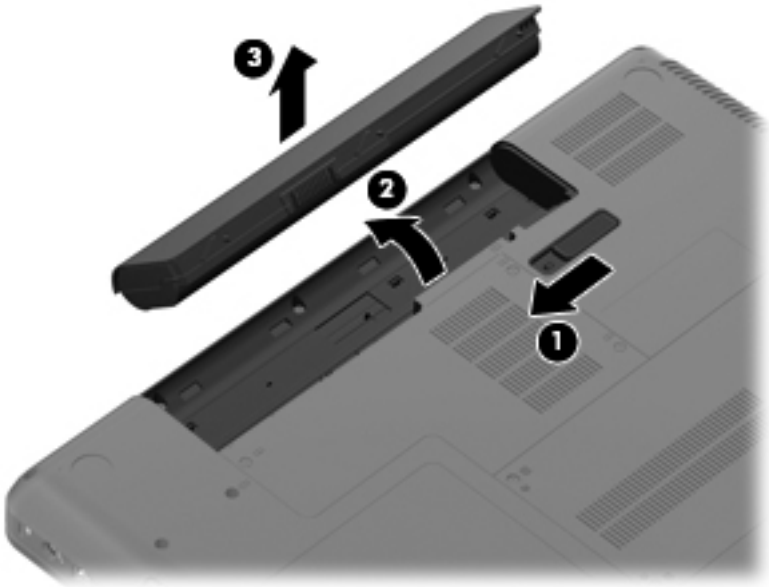
Description	Spare part number
6 cell, 2.20-Ah, 47-Wh	593553-001
6 cell, 2.55-Ah, 55-Wh	593554-001

Before removing the battery, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.

Remove the battery:

1. Position the computer upside down on a flat surface, with the battery bay toward you.
2. Slide the battery release latch **(1)** to release the battery.
3. Pivot the battery **(2)** upward and lift it out of the computer **(3)**.



To insert the battery, insert the rear edge of the battery into the battery bay and pivot the front edge downward until the battery is seated. The battery release latch automatically locks the battery into place.

Hard drive

NOTE: The hard drive spare part kit includes a bracket, connector, and screws. The bracket, connector, and screws are also available in the Hard Drive Hardware Kit.

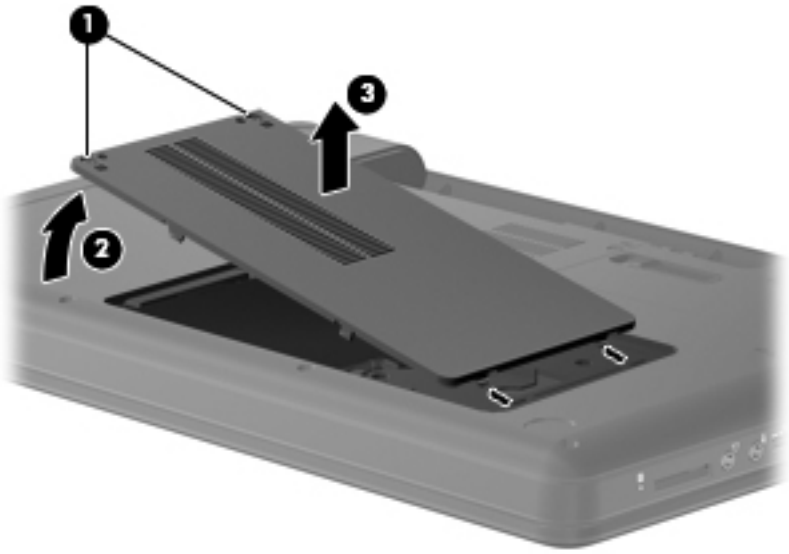
Description	Spare part number
500-GB, 5400-rpm **9.5-mm, 6.35-cm** (2.5-in)	634932-001
320-GB, 7200-rpm **9.5-mm, 6.35-cm** (2.5-in)	627731-001
250-GB, 7200-rpm **9.5-mm, 6.35-cm** (2.5-in)	599054-001
Hard Drive Hardware Kit (not illustrated; includes bracket, connector, and screws)	599057-001

Before removing the hard drive:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 36)

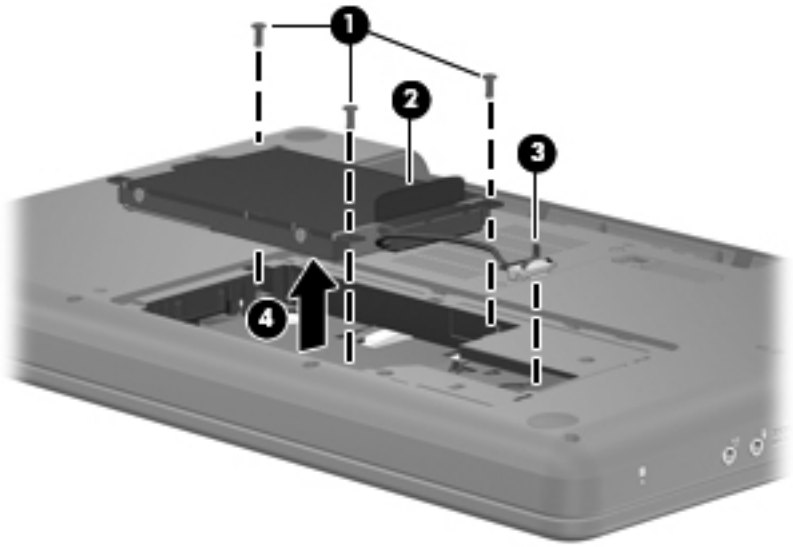
Remove the hard drive:

1. Position the computer upside down, with the front toward you.
2. Loosen the two Phillips 2.5×5.0 captive screws **(1)** that secure the hard drive cover to the computer.
3. Lift the left side of the hard drive cover **(2)**, swing it up, and then remove the cover **(3)**. The hard drive cover is included in the Plastics Kit, spare part number 595200-001.

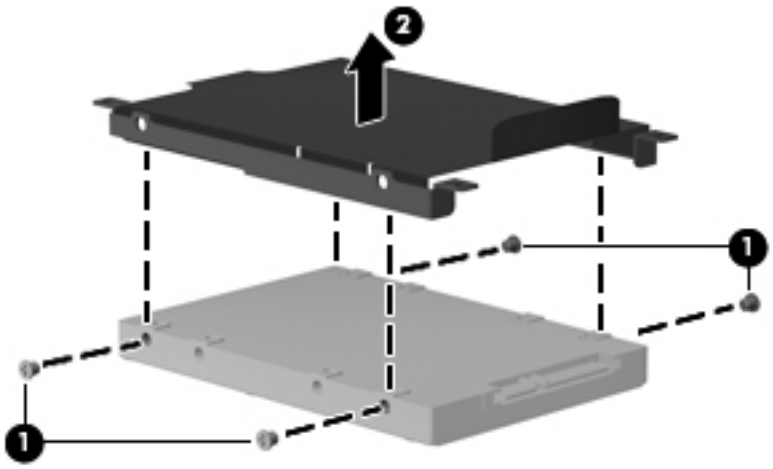


4. Remove the three Phillips 2.5×5.0 screws **(1)** that secure the hard drive to the computer.

5. Use the Mylar tab **(2)** to lift the hard drive out of the hard drive compartment.
6. Disconnect the hard drive cable from the system board **(3)** and remove the hard drive from the computer **(4)**.



7. To replace the hard drive bracket, remove the four Phillips 3.0×3.5 screws **(1)** that secure the hard drive bracket to the hard drive.
8. Grasp the attached Mylar tab and pull it up to remove the bracket from the hard drive **(2)**.



Reverse this procedure to reassemble and install the hard drive.

Optical drive

NOTE: The optical drive spare part kit includes a bezel and bracket.

Description	Spare part number
DVD±RW SuperMulti Double-Layer Drive with LightScribe	620604-001

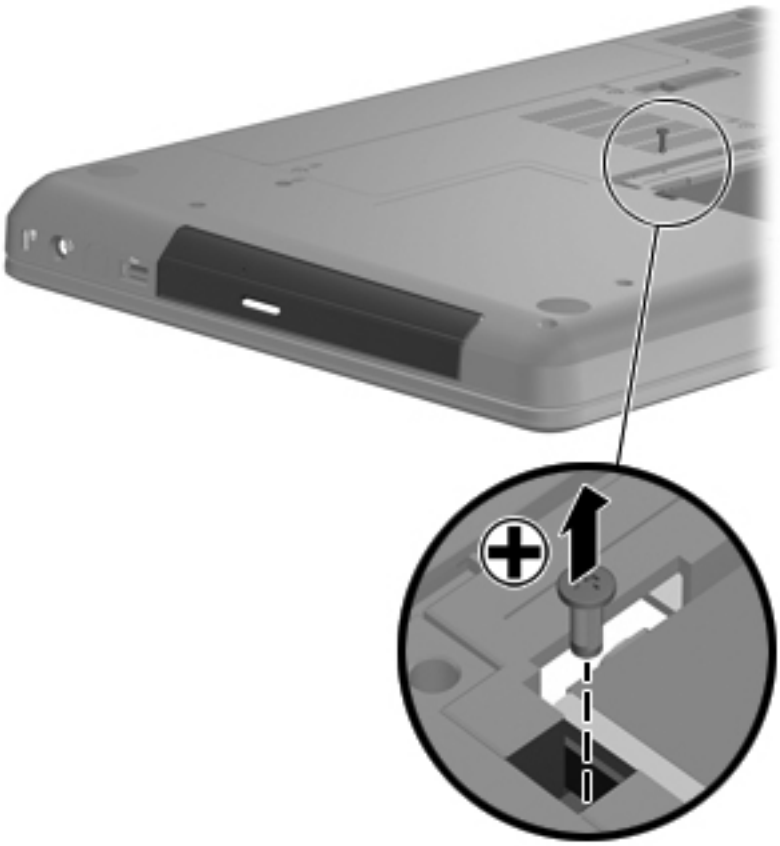
Before removing the optical drive:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36).
   b. Hard drive (see Hard drive on page 37).

Remove the optical drive:

1. Position the computer upside down, with the front toward you.

2. Remove the optical drive screw.



3. Insert a thin tool, such as a screwdriver **(1)**, into the release access slot in the hard drive bay, and press against the back of the optical drive.

4. Grasp the drive **(2)** and remove it from the optical drive bay.

Reverse this procedure to reassemble and install the optical drive.

WLAN module

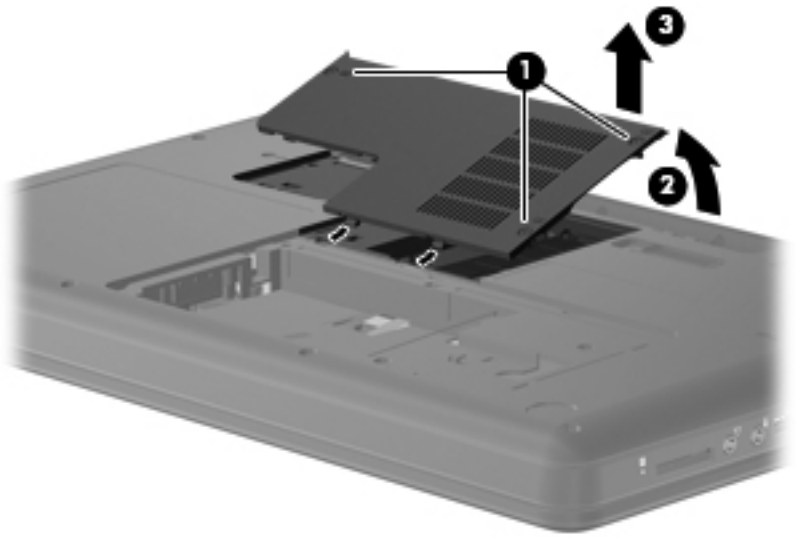
Description	Spare part number
Atheros AR9285 802.11b/g/n 1x1 WiFi adapter	605560-005
Realtek RTL8191SE 802.11b/g/n 1x1 WiFi adapter	593533-001
Broadcom 4313 802.11b/g/n 1x1 WiFi adapter	593836-001
Broadcom 4313 802.11b/g/n 1x1 WiFi and 2070 Bluetooth 2.1+EDR Combo adapter (BT3.0+HS ready)	600370-001
Ralink RT3090BC4 802.11b/g/n 1x1 WiFi and Bluetooth 2.1+EDR Combo adapter (BT3.0+HS ready)	602992-001
Ralink RT5390 802.11b/g/n 1x1 WiFi adapter	630703-001

Before removing the WLAN module:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 36).

Remove the WLAN module:

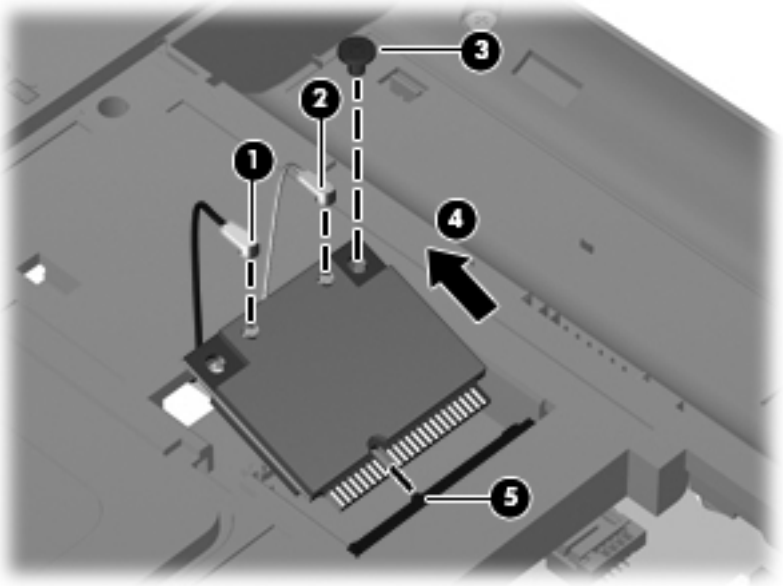
1. Position the computer upside down, with the front toward you.
2. Loosen the three Phillips 2.5×5.0 captive screws **(1)** that secure the memory module compartment cover.
3. Lift the outside edge of the memory module cover **(2)**, and remove the cover **(3)**. The memory module compartment cover is included in the Plastics Kit, spare part number 595200-001.



4. Disconnect the main antenna cable **(1)** and the auxiliary antenna cable **(2)** from the wireless module.
5. Remove the Phillips 2.0×3.0 screw **(3)** that secures the WLAN module to the computer. (The edge of the module opposite the slot rises away from the computer.)
6. Remove the WLAN module **(4)** by pulling it away from the slot at an angle.

△ **CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact technical support through Help and Support (Windows) or Help (Linux).

NOTE: WLAN modules are designed with a notch **(5)** to prevent incorrect insertion into the WLAN module slot.



Reverse this procedure to install the WLAN module.

Memory module

Description	Spare part number
1 GB, 1066 MHz DDR2 (Intel)	619545-001
2 GB, 1066 MHz DDR2 (Intel)	619546-001
1 GB, 1333 MHz, DDR3 (AMD)	621559-001
2 GB, 1333 MHz, DDR3, (AMD)	621566-001

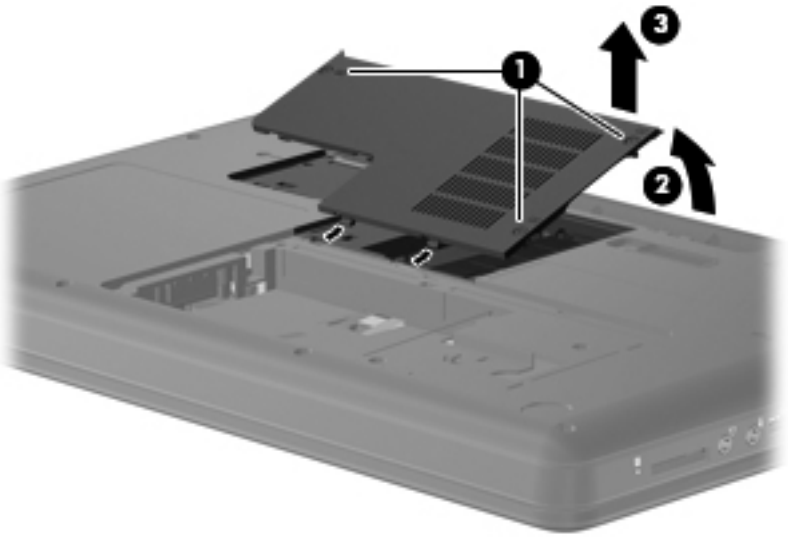
Before removing a memory module:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see Battery on page 36).

Remove the memory module:

1. Position the computer upside down, with the front toward you.
2. Loosen the three Phillips 2.5×5.0 captive screws **(1)** that secure the memory module compartment cover to the computer.
3. Lift the outside edge of the memory module cover **(2)**, and remove the cover **(3)**. The memory module compartment cover is included in the Plastics Kit, spare part number 595200-001.

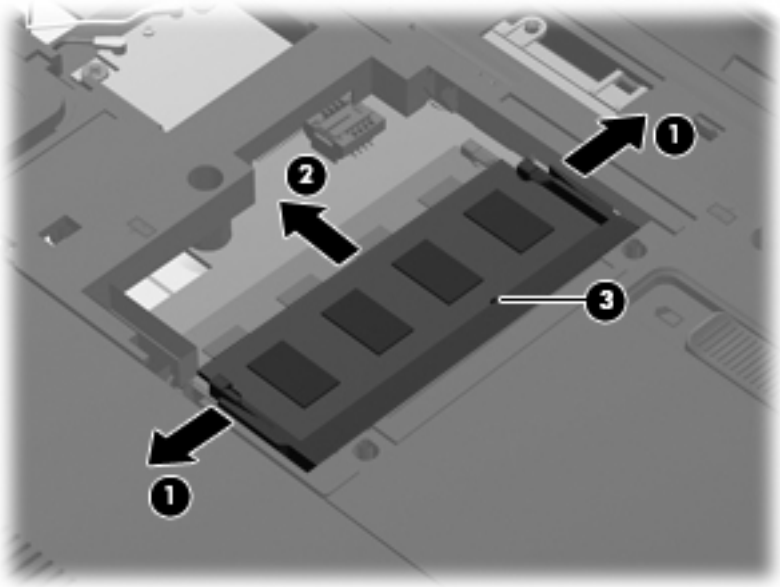
NOTE: Small tabs hold the cover in place. Firmly pull up on the cover to release the tabs.



4. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The edge of the module opposite the slot rises away from the computer.)

5. Remove the module **(2)** by pulling it away from the slot at an angle.

NOTE: Memory modules are designed with a notch **(3)** to prevent incorrect insertion into the memory module slot.



Reverse this procedure to install a memory module.

Keyboard

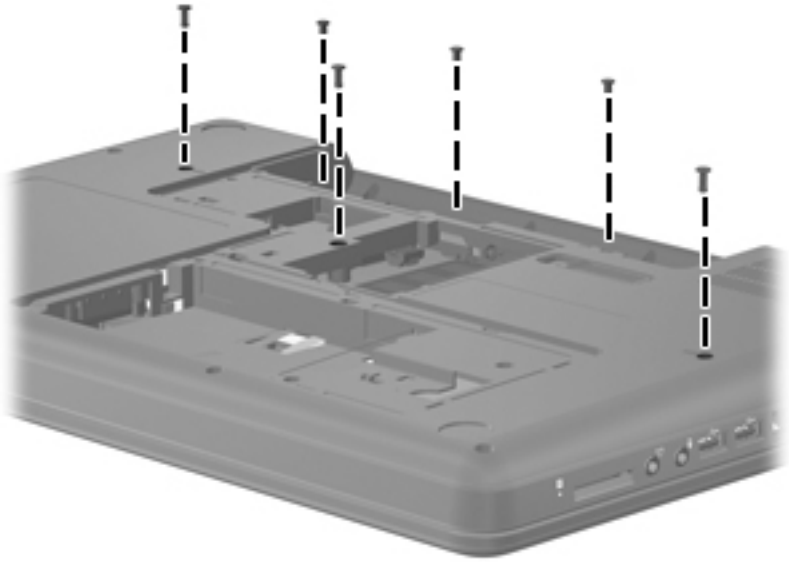
Description	Spare part number
For use in Adriatic countries	595199-BA1
For use in Belgium	595199-A41
For use in Canada	595199-121
For use in the Czech Republic	595199-221
For use in France	595199-051
For use in Germany	595199-041
For use in Greece	595199-DJ1
For use in Hungary	595199-211
For International use	595199-B31
For use in Israel	595199-BB1
For use in Italy	595199-061
For use in Japan	595199-291
For use in Latin America	595199-161
For use in North America	595199-001
For use in Norway	595199-DH1
For use in Portugal	595199-131
For use in Russia	595199-251
For use in Saudi Arabia	595199-171
For use in Spain	595199-071
For use in Switzerland	595199-BG1
For use in Turkey	595199-141
For use in the United Kingdom	595199-031

Before removing the keyboard:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36).
   b. Remove the memory module compartment cover (see WLAN module on page 42)

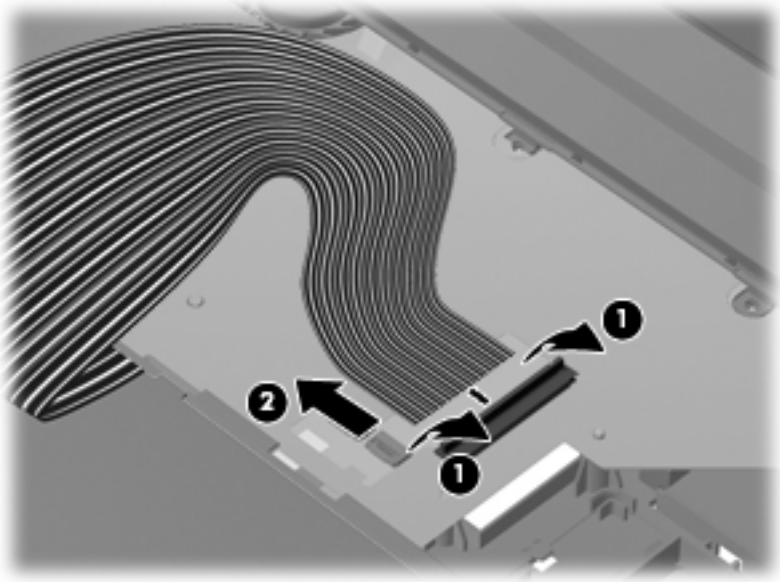
Remove the keyboard:

1. Position the computer upside down, with the front toward you.
2. Remove the three Phillips 2.5×5.0 and three Phillips 2.5×6.0 screws that secure the keyboard to the computer.



3. Position the computer right-side up, with the front toward you.
4. Open the computer as far as possible.
5. Release the tabs along the left **(1)** and right **(2)** edges of the keyboard using a thin, flat-bladed screwdriver.
6. Lift the rear edge of the keyboard **(3)**.

7. Release the zero insertion force (ZIF) connector **(1)** to which the keyboard cable is attached and disconnect the keyboard cable **(2)** from the system board.



8. Remove the keyboard.

Reverse this procedure to install the keyboard.

Top cover

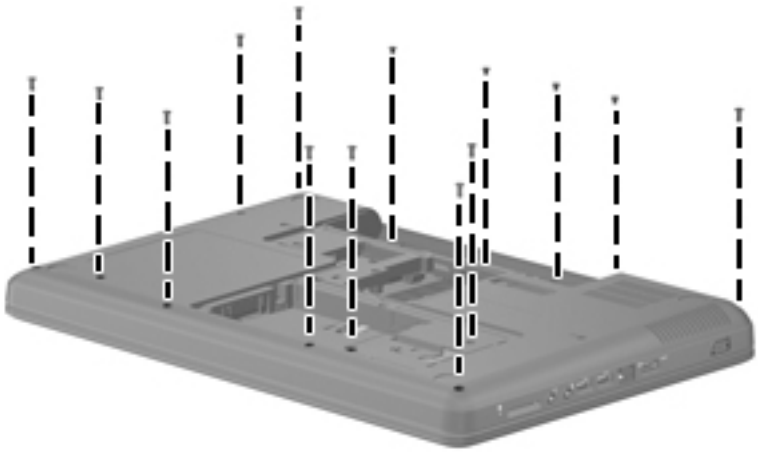
Description	Spare part number
Top cover (includes TouchPad board)	620605-001

Before removing the top cover:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36).
   b. Hard drive cover (see Hard drive on page 37).
   c. WLAN module (see WLAN module on page 42).
   d. Keyboard (see Keyboard on page 46).

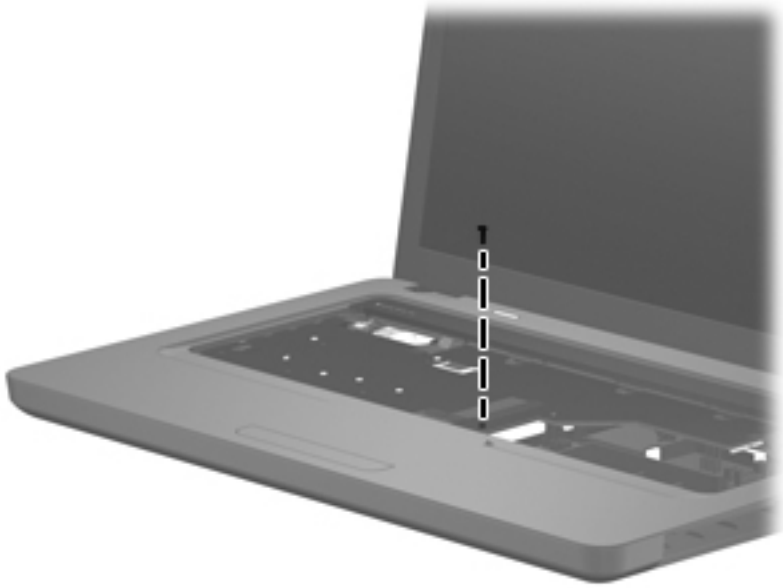
Remove the top cover:

1. Position the computer upside down, with the front toward you.
2. Remove four Phillips 2.0×3.0 screws in the battery bay, and remove ten Phillips 2.0×6.5 screws on the base enclosure. The top cover screws are identified by a triangle icon embossed on the base enclosure.

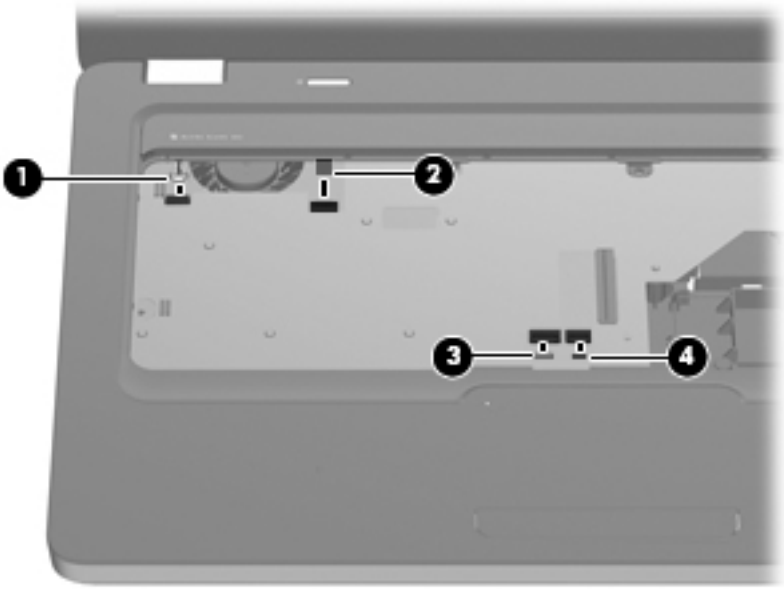


3. Postion the computer right-side up, with the front toward you.
4. Open the computer as far as possible.

5. Remove the Phillips 2.0×5.0 screw that secures the top cover to the computer.



6. Release the speaker cable **(1)**, power button ZIF connector **(2)**, TouchPad ZIF connector **(3)**, and TouchPad button ZIF connector **(4)**.



7. Lift the rear edge of the top cover **(1)** until the top cover disengages from the base enclosure.

8. Remove the top cover **(2)**.

NOTE: The TouchPad is glued to the top cover and is included with the top cover spare part.

Reverse this procedure to install the top cover.

Speaker assembly

Description	Spare part number
Speaker assembly (includes cable)	620607-001

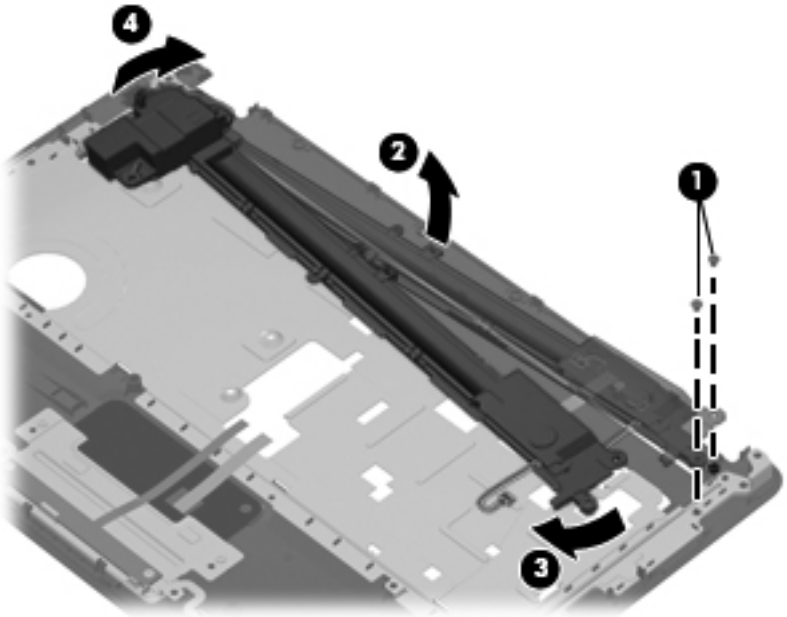
Before removing the speaker assembly:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36)
   b. Hard drive cover (see Hard drive on page 37)
   c. WLAN module (see WLAN module on page 42)
   d. Keyboard (see Keyboard on page 46)
   e. Top cover (see Top cover on page 49)

Remove the speaker assembly:

1. Position the top cover upside down.
2. Remove the two Phillips 2.5×3.0 screws **(1)** that secure the speaker assembly to the top cover.
3. Remove the tape around the speaker cable.
4. Release the speaker from the plastic clip in the center **(2)**.
5. Swing the right edge of the speaker assembly down **(3)** toward the TouchPad.

6. Remove the speaker assembly by sliding the left edge **(4)** from beneath the bracket in the top cover.



Reverse this procedure to install the speaker assembly.

Power button board

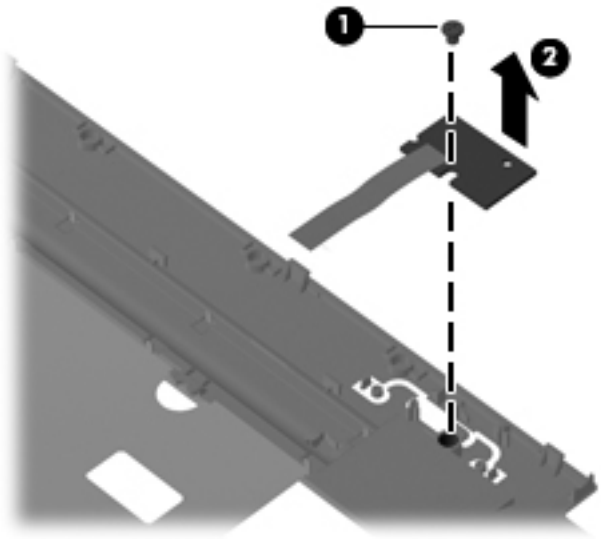
Description	Spare part number
Power button board	595204-001

Before removing the power button board:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36).
   b. Hard drive (see Hard drive on page 37)
   c. WLAN module (see WLAN module on page 42).
   d. Keyboard (see Keyboard on page 46)
   e. Top cover (see Top cover on page 49)

Remove the power button board:

1. Position the top cover upside down, with the rear edge toward you.
2. Remove the Phillips 2.5×3.0 screw **(1)** that secures the power button board to the top cover.
3. Lift up and remove the power button board **(2)**.



Reverse this procedure to install the power button board.

TouchPad button board

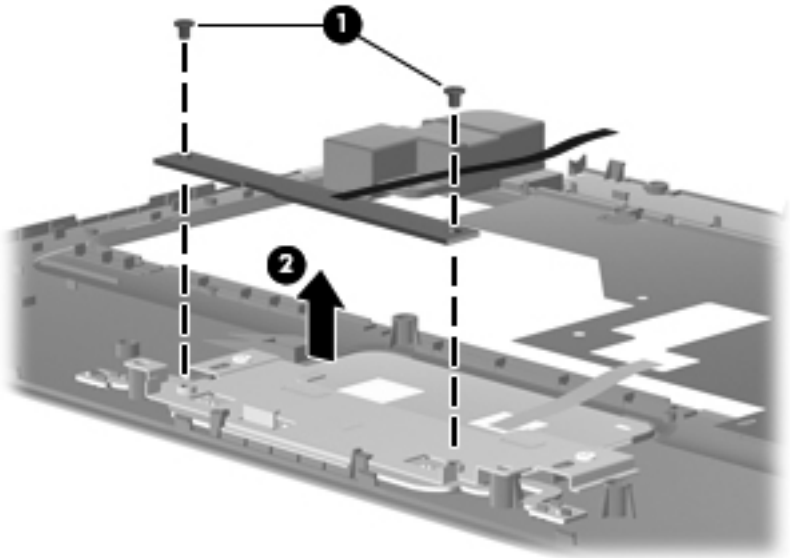
Description	Spare part number
TouchPad button board (with cable)	595203-001

Before removing the TouchPad button board:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36).
   b. Hard drive (see Hard drive on page 37)
   c. WLAN module (see WLAN module on page 42)
   d. Keyboard (see Keyboard on page 46)
   e. Top cover (see Top cover on page 49)

Remove the TouchPad button board:

1. Position the top cover upside down, with the front toward you.
2. Remove the two Phillips 2.5×3.0 screws **(1)** that secure the TouchPad board to the top cover.
3. Lift up and remove the TouchPad button board **(2)** from the TouchPad bracket.



Reverse this procedure to install the TouchPad button board.

USB board

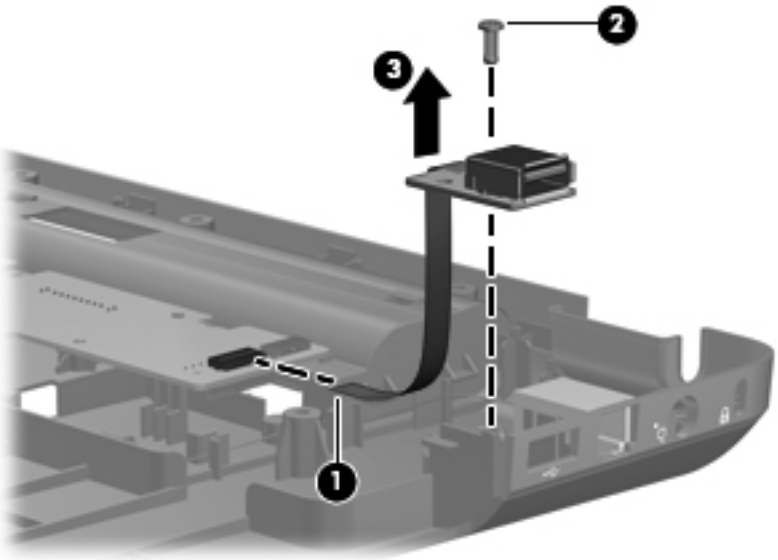
Description	Spare part number
USB board	595205-001

Before removing the USB board:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (seeBattery on page 36).
   b. Hard drive (see Hard drive on page 37)
   c. WLAN module (see WLAN module on page 42).
   d. Keyboard (see Keyboard on page 46)
   e. Top cover (see Top cover on page 49)

Remove the USB board:

1. Position the computer upright with the right side toward you.
2. Disconnect the USB board cable **(1)** from the system board.
3. Remove the Phillips 2.5 x 3.0 screw **(2)** that secures the USB board to the base enclosure.
4. Lift the USB board **(3)** straight up to remove it from the computer. The USB cable is available in the Cable Kit, spare part number 595201-001



Reverse this procedure to install the USB board.

Power connector

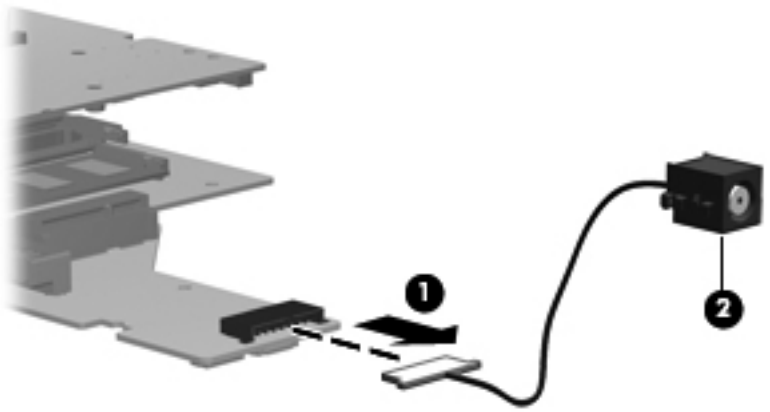
Description	Spare part number
Power connector (includes cable)	602743-001

Before removing the power connector cable:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36)
   b. Hard drive (see Hard drive on page 37)
   c. WLAN module (see WLAN module on page 42)
   d. Keyboard (see Keyboard on page 46)
   e. Top cover (see Top cover on page 49)

Remove the power connector cable:

1. Position the computer upright, with the right side toward you.
2. Disconnect the power connector cable **(1)** from the system board.
3. Lift the power connector **(2)** from the clips built into the base enclosure.



Reverse this procedure to install the power connector.

Display assembly

Description	Spare part number
39.6-cm (15.6-in) HD LED BrightView display assembly with webcam and microphone for HP G56 computer	620589-001
39.6-cm (15.6-in) HD LED BrightView display assembly with microphone for HP G56 computer	620588-001
39.6-cm (15.6-in) HD CCFL BrightView display assembly with webcam and microphone for HP G56 computer	620591-001
39.6-cm (15.6-in) HD CCFL BrightView display assembly with microphone for HP G56 computer	620590-001
39.6-cm (15.6-in) HD LED BrightView display assembly with webcam and microphone for Presario CQ56 computer	620585-001
39.6-cm (15.6-in) HD LED BrightView display assembly with microphone for Presario CQ56 computer	620584-001
39.6-cm (15.6-in) HD CCFL BrightView display assembly with webcam and microphone for Presario CQ56 computer	620587-001
39.6-cm (15.6-in) HD CCFL BrightView display assembly with microphone for Presario CQ56 computer	620586-001

Before removing the display assembly:

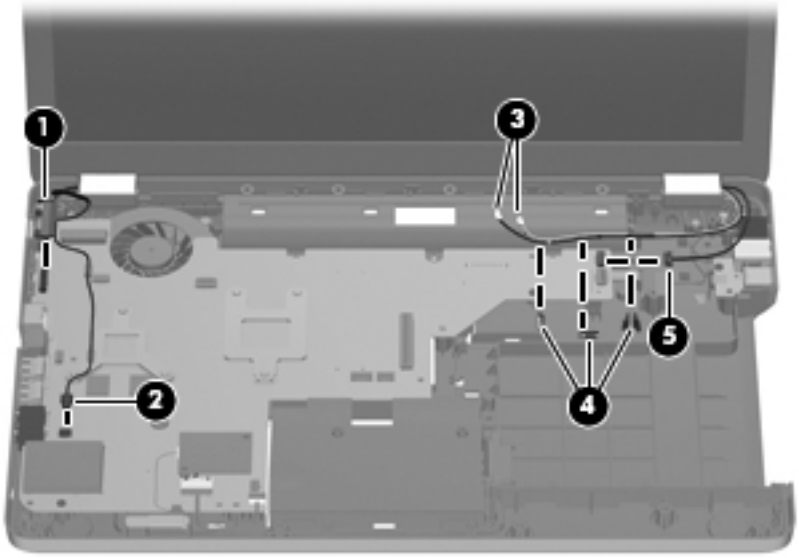
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36)
   b. Hard drive cover (see Hard drive on page 37)
   c. WLAN module (see WLAN module on page 42)
   d. Optical drive (see Optical drive on page 39)
   e. Keyboard (see Keyboard on page 46)
   f. Top cover (see Top cover on page 49)
5. Disconnect the wireless antenna cables from the WLAN module (see WLAN module on page 42).

Remove the display assembly:

1. Position the computer right-side up, with the front toward you.
2. Open the display as far as possible.
3. Disconnect the display panel cable **(1)** and the microphone cable **(2)** from the system board and remove them from their routing channels.

4. Pull the antenna cables through the opening in the top cover **(3)** and disengage the cables from the clip in the routing channel leading to the display hinge **(4)**.

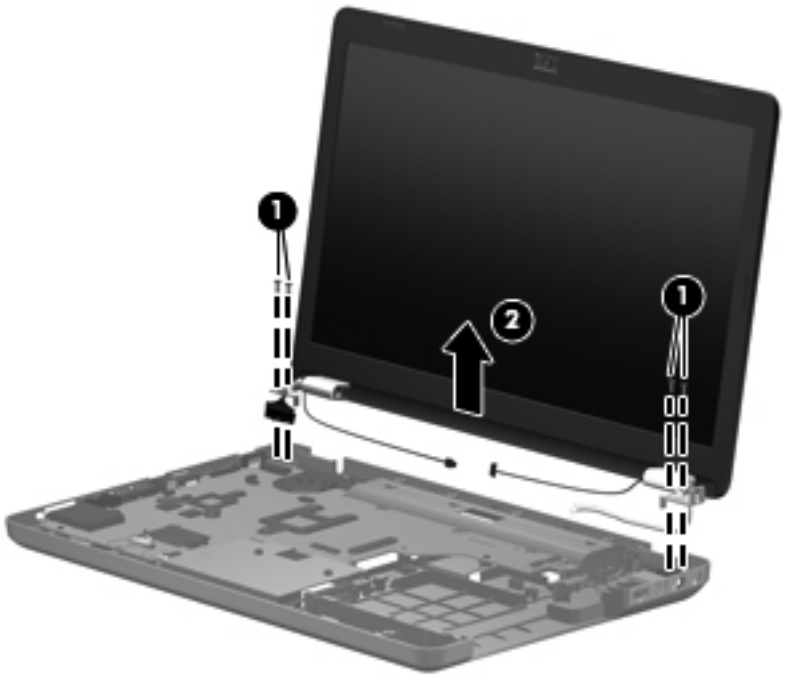
5. Disconnect the webcam cable (select models only) **(5)** from the system board and release it from the clips that attach it to the system board.



△ **CAUTION:** Support the display assembly when removing the display screws in the following steps. Failure to support the display assembly can result in damage to the assembly and other components.

6. Remove the four black Phillips 2.5×6.5 screws **(1)** that secure the display assembly to the computer.

7. Lift the display panel **(2)** straight up to remove it.



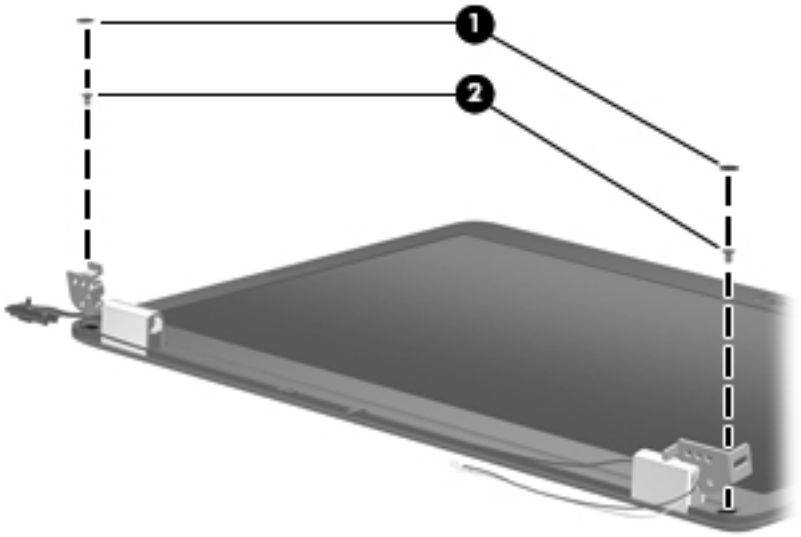
Reverse this procedure to install the display assembly.

8. To replace any of the display assembly internal components, remove the following screw covers and screws:

   (1) Two Mylar screw covers on the display bezel bottom edge

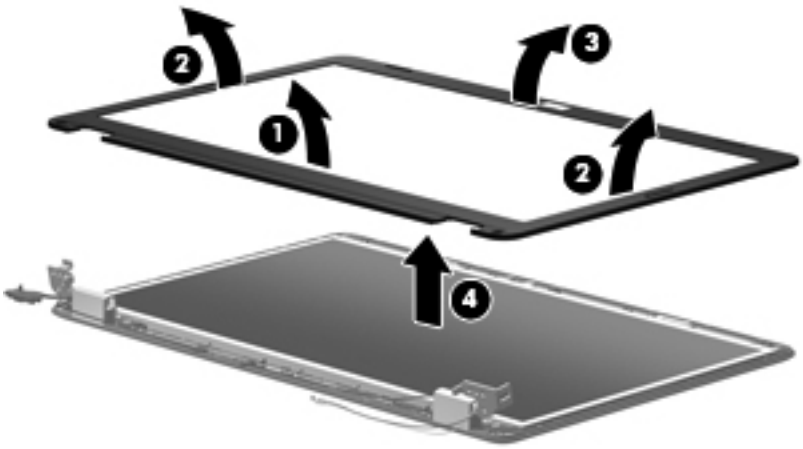
   (2) Two Phillips 2.5×3.0 screws

   The display screw covers are included in the Display Screw Kit, spare part number 595197-001.



9. Flex the inside edge of the top **(1)**, the left and right sides **(2)**, and the bottom **(3)** of the display bezel until the bezel disengages from the display back cover.

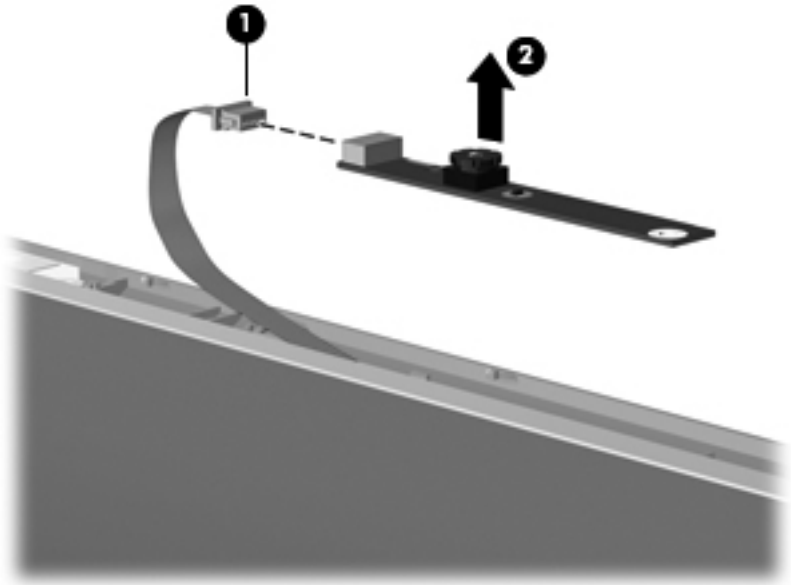
10. Remove the display bezel **(4)**. The display bezel is available using spare part numbers 620593-001 (for Presario CQ56 models with webcam and microphone modules), 620592-001 (for Presario CQ 56 models with microphone module only), 620595-001 (for HP G56 models with webcam and microphone modules), and (620594-001 for HP G56 models with microphone module only).



   Reverse this procedure to install the display bezel.

11. To replace the webcam module (select models only), lift the webcam module as far from the display enclosure as the webcam module cable allows.

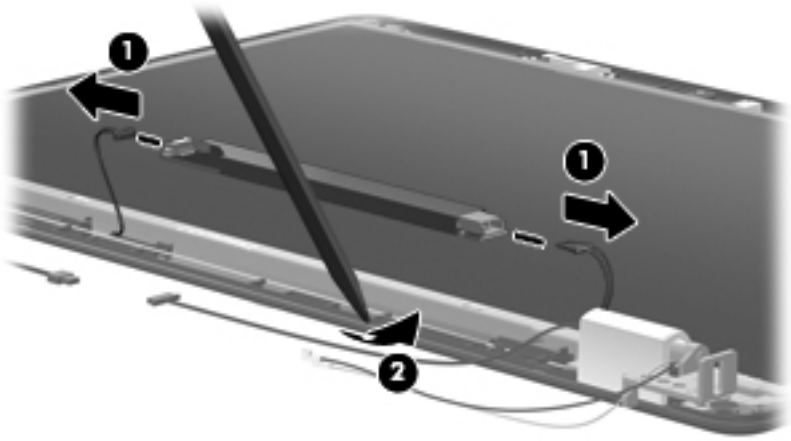
12. Disconnect the webcam module cable **(1)** from the webcam module, and remove the webcam module **(2)**. The webcam module is available using spare part number 626656-001.



Reverse this procedure to install the webcam module.

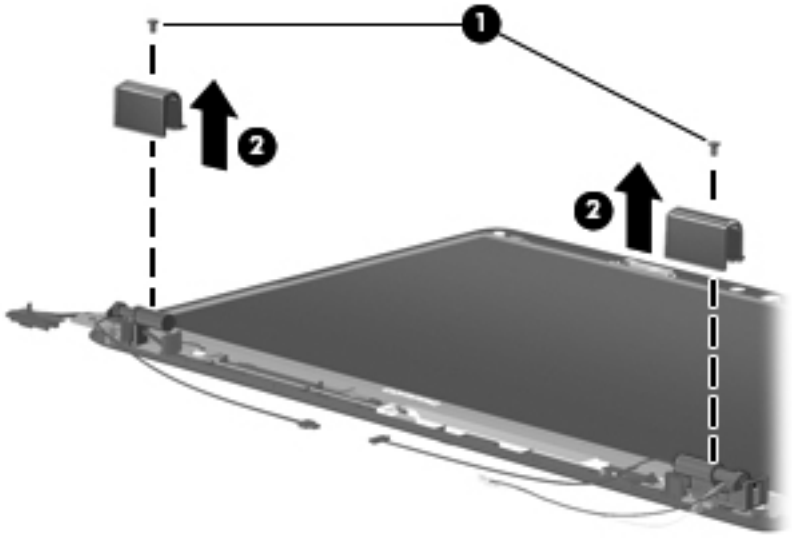
13. To replace the display inverter, disconnect the cables **(1)** on both sides of the inverter.

14. Then use a flat flexible tool **(2)** to pry the inverter loose from the adhesive that attaches it to the display enclosure. The display inverter is available using spare part number 616467-001.



15. To replace the display hinge covers, remove the Phillips 2.5×4.0 screw **(1)** that secures each hinge to the display enclosure.

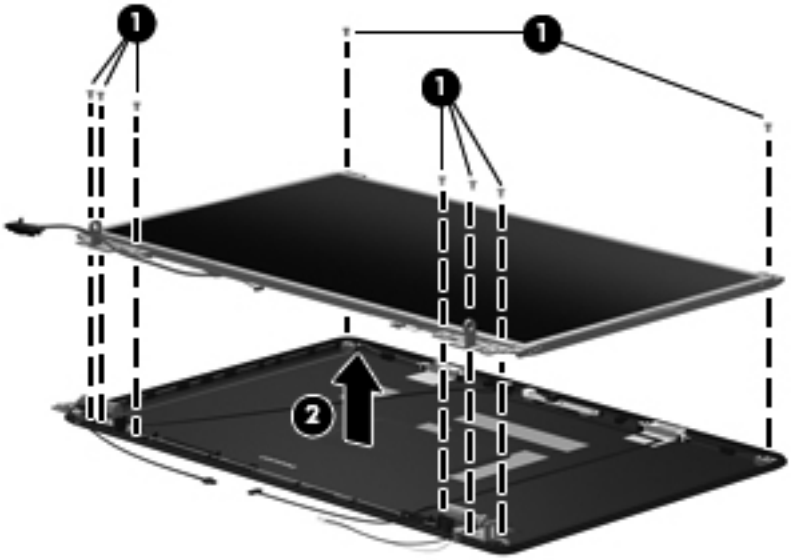
16. Remove the display hinge covers **(2)**. The display hinge covers are available using spare part number 600650-001.



Reverse this procedure to install the display hinge covers.

17. To replace the display panel, remove the eight Phillips 2.5 x 4.0 screws **(1)** that secure the display panel to the display enclosure.

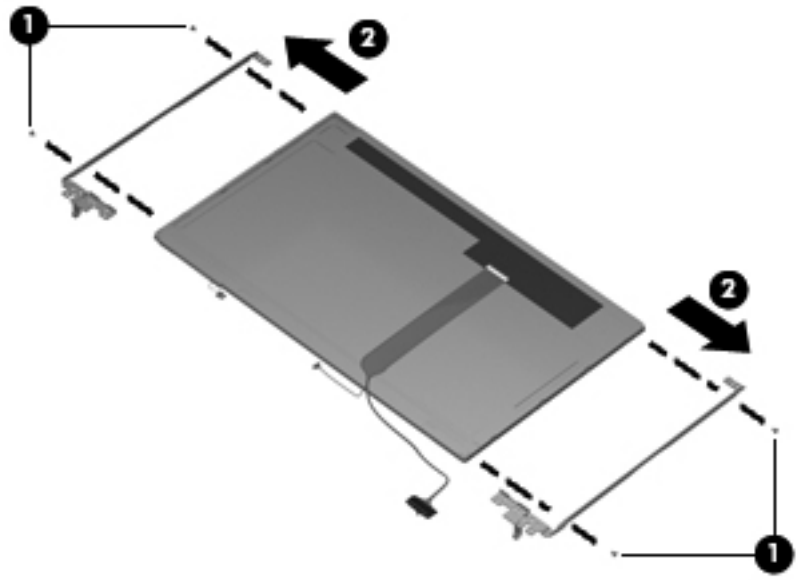
18. Remove the display panel **(2)** from the display enclosure. The LED display panel is available using spare part number 595130-001. The CCFL display panel is available using part number 616450-001.



Reverse this procedure to install the display panel.

19. To replace the display panel brackets, remove the two Phillips 2.0×3.0 screws **(1)** that secure each bracket to the display panel.

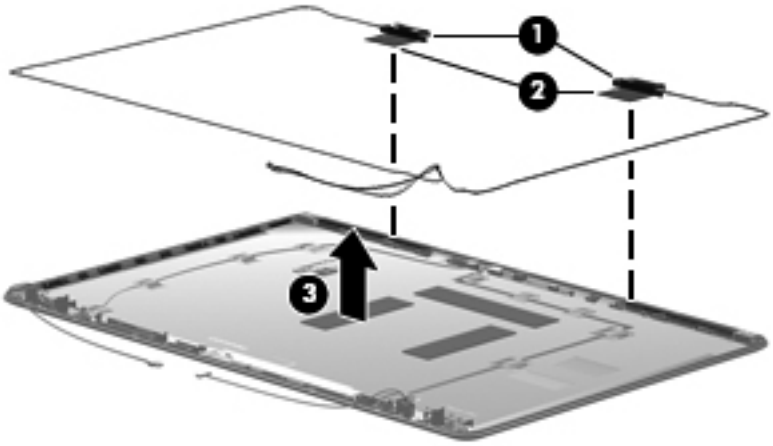
20. Remove the display panel brackets **(2)** from the display panel. The display panel brackets are available using spare part number 595195-001.



Reverse this procedure to install the display panel brackets.

21. To replace the wireless antenna transceivers, lift up on the silver transceiver **(1)** and release the adhesive material from the display cover **(2)**.

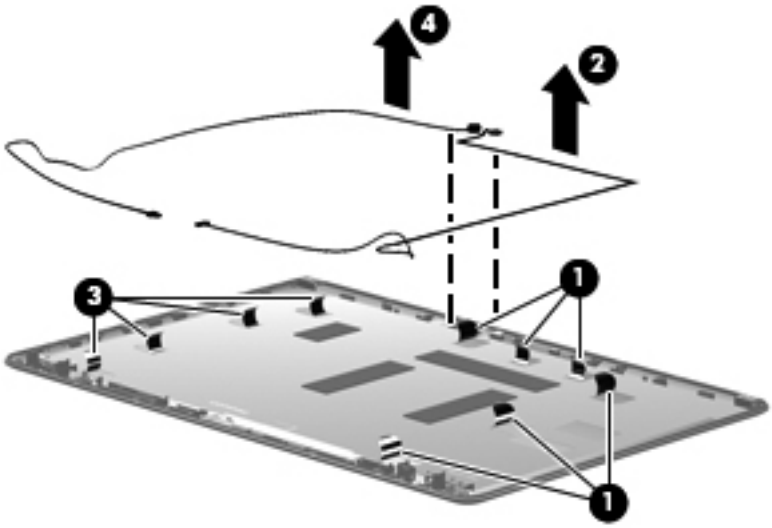
22. Lift up to remove the antenna transceivers **(3)**. The wireless antenna transceivers with cable are available in the Display Cable Kit, spare part number 595196-001 (for use with LED panels) and 616466-001 (for use with CCFL panels).



Reverse this procedure to install the display wireless antenna transceivers.

23. To replace the microphone cable, release the adhesive tabs **(1)** from the display cover and lift up on the microphone cable **(2)**.

24. To replace the webcam cable, release the adhesive tabs **(3)** from the display cover and lift up on the webcam cable **(4)**.



Reverse this procedure to install the microphone and webcam cables.

System board

NOTE: The system board spare part kit includes UMA graphics subsystem memory and replacement thermal material.

Description	Spare part number
PCA UMA system board (AMD)	623915-001
PCA UMA system board (Intel)	623909-001

When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

- RTC battery (see RTC battery on page 69)
- Memory modules (see Memory module on page 44)
- WLAN module (see WLAN module on page 42)
- Fan/heat sink assembly (see Fan/heat sink assembly on page 71)
- Processor (see Processor on page 75

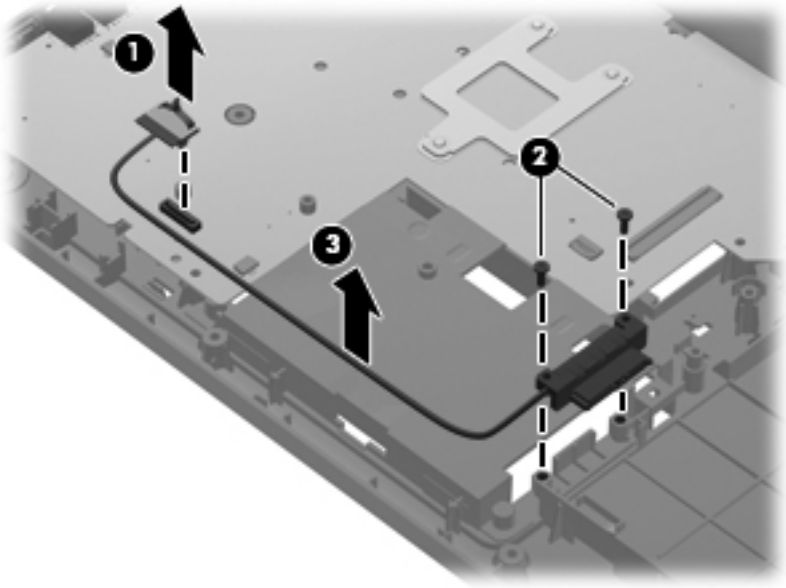
Before removing the system board:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36)
   b. Hard drive module (see Hard drive on page 37)
   c. WLAN module (see WLAN module on page 42)
   d. Memory module (see Memory module on page 44)
   e. Optical drive (see Optical drive on page 39)
   f. Keyboard (see Keyboard on page 46)
   g. Top cover (see Top cover on page 49)
   h. Display assembly (see Display assembly on page 59)
   i. Fan/heat sink assembly (see Fan/heat sink assembly on page 71)
   j. Processor (see Processor on page 75

Remove the following cables from the system board:

- Power connector cable (see Power connector on page 58)
- USB board cable (see USB board on page 56)

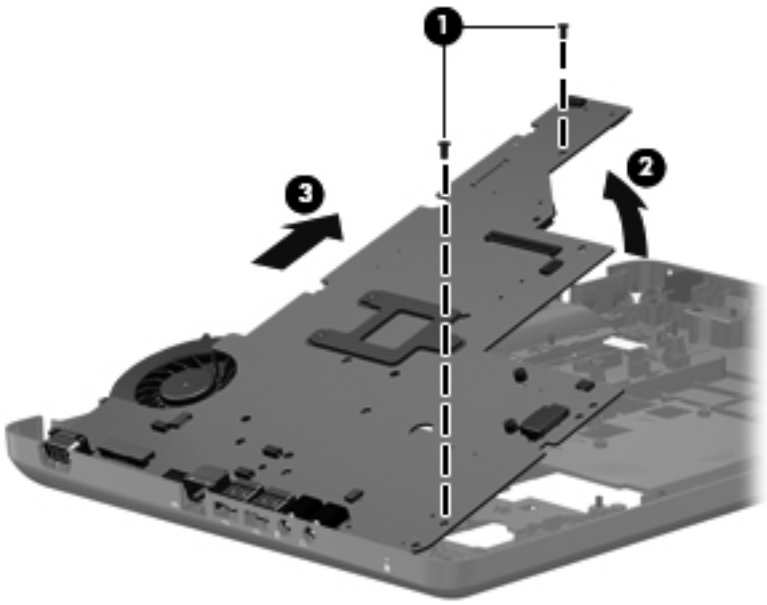
1. Position the computer upright with the right side toward you.
2. To remove the optical drive cable, disconnect it from the system board **(1)**, and then remove the two Phillips 2.0×6.0 screws **(2)** that secure the optical drive cable to the computer.
3. Lift the optical drive cable straight up **(3)** to remove it.



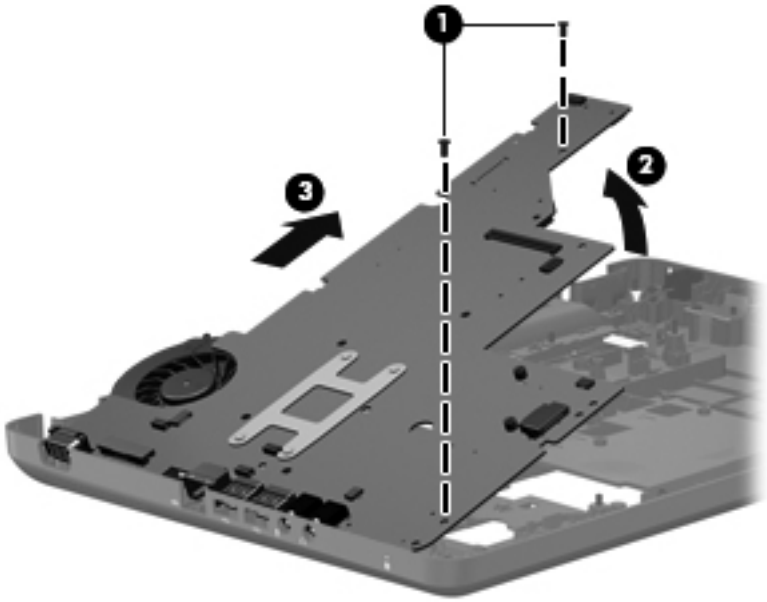
4. Remove the two Phillips 2.5×4.0 **(1)** screws that secure the system board to the computer.
5. Lift the right edge **(2)** of the system board.

6. Pull the system board **(3)** away from the base enclosure at an angle.

The AMD system board is shown below.



The Intel system board is shown below.



Reverse this procedure to install the system board.

RTC battery

Description	Spare part number
RTC battery	602745-001

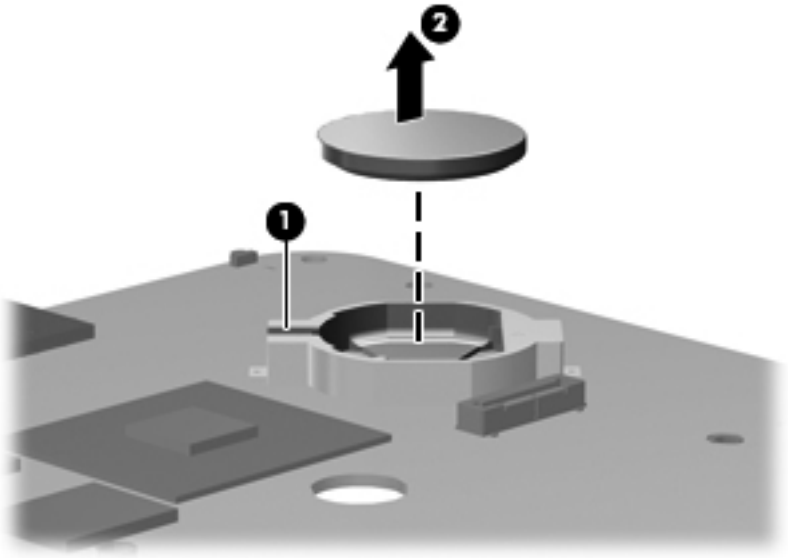
Before removing the RTC battery:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36)
   b. Hard drive (see Hard drive on page 37)
   c. WLAN module (see WLAN module on page 42)
   d. Memory module (see Memory module on page 44)
   e. Optical drive (see Optical drive on page 39)
   f. Keyboard (see Keyboard on page 46)
   g. Top cover (see Top cover on page 49)
   h. Display assembly (see Display assembly on page 59)
   i. System board (see System board on page 66)

Remove the RTC battery:

1. Position the system board upside down.
2. Use a sharp, non-conductive tool to release the clip **(1)** that secures the battery to the system board.

3. Lift the battery **(2)** out of the computer.



Reverse this procedure to install the RTC battery.

Fan/heat sink assembly

Description	Spare part number
Fan/heat sink assembly (includes replacement thermal material) for use with UMA systems (AMD)	630722-001
Fan/heat sink assembly (includes replacement thermal material) for use with UMA systems (Intel)	606573-001

Before removing the fan/heat sink assembly:

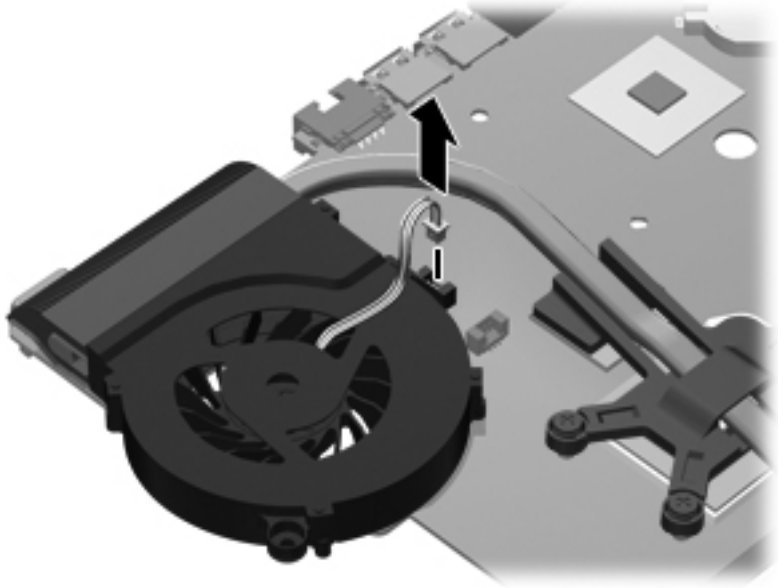
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Battery (see Battery on page 36)
   b. Hard drive (see Hard drive on page 37)
   c. WLAN module (see WLAN module on page 42)
   d. Memory module (see Memory module on page 44)
   e. Optical drive (see Optical drive on page 39)
   f. Keyboard (see Keyboard on page 46)
   g. Top cover (see Top cover on page 49)
   h. Display assembly (see Display assembly on page 59)
   i. System board (see System board on page 66)

Remove the fan/heat sink assembly (fan/heat sink appearance might vary):

NOTE: Steps 1 through 4 apply only to computer models equipped with the AMD processor.

1. Position the system board right-side up, with the front toward you.

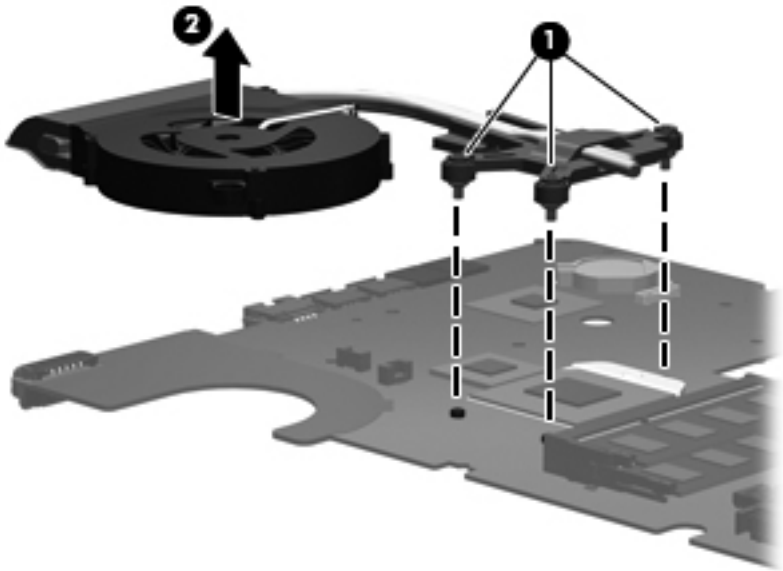
2. Disconnect the fan cable from the system board.



3. Follow the sequence embossed on the heat sink to loosen the three Phillips 2.5 x 9.0 captive screws **(1)** that secure the fan/heat sink assembly to the system board.

NOTE: Due to the adhesive quality of the thermal material located between the fan/heat sink assembly and system board components, it might be necessary to move the fan/heat sink assembly from side to side to detach the assembly.

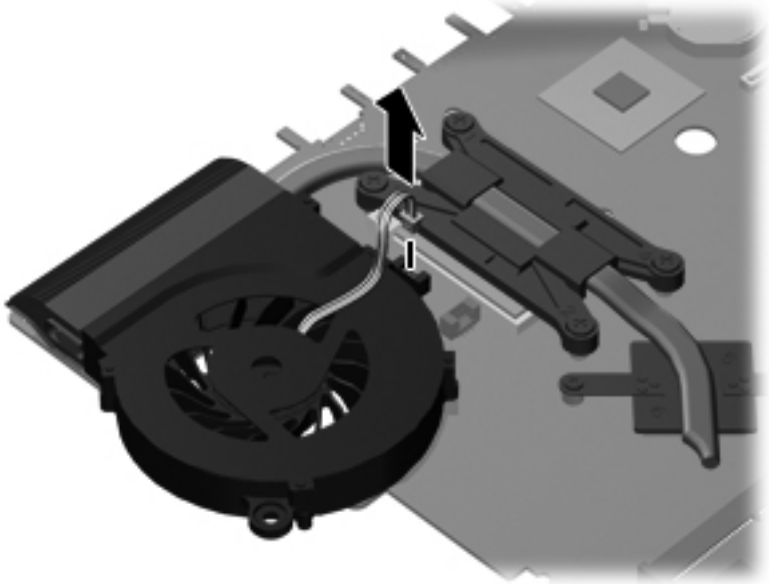
4. Remove the fan/heat sink assembly **(2)** by lifting straight up.



NOTE: Steps 5 through 8 apply only to computer models equipped with the Intel processor.

5. Position the system board right-side up, with the front toward you.

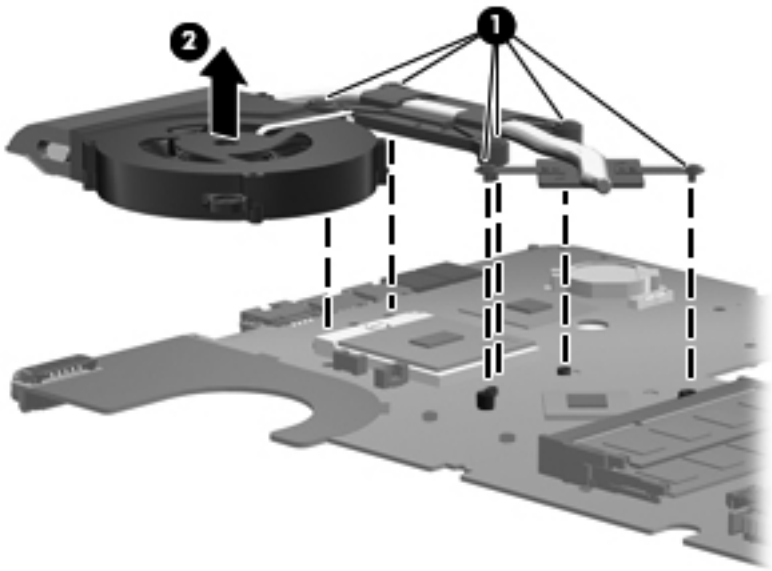
6. Disconnect the fan cable from the system board.



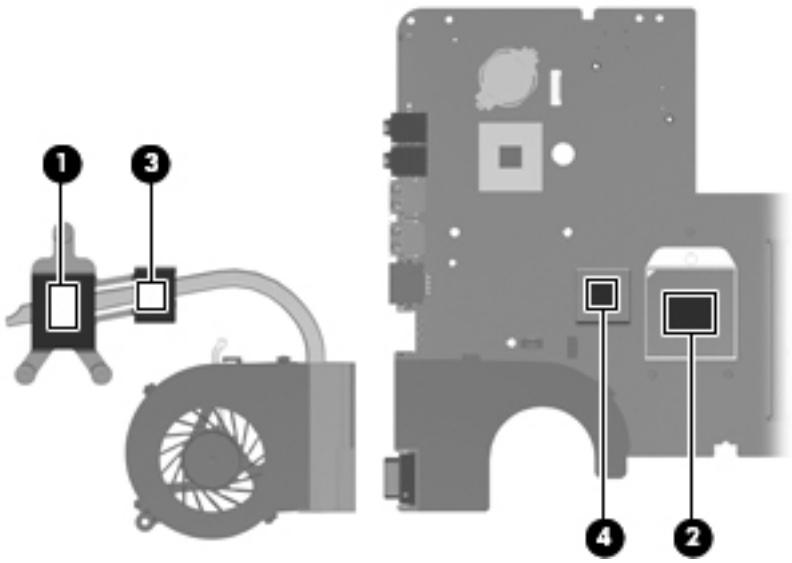
7. Loosen the two Phillips captive screws and the four Phillips spring-loaded captive screws **(1)** that secure the fan/heat sink assembly.

NOTE: Due to the adhesive quality of the thermal material located between the fan/heat sink assembly and system board components, it might be necessary to move the fan/heat sink assembly from side to side to detach the assembly.

8. Remove the fan/heat sink assembly **(2)** by lifting straight up.



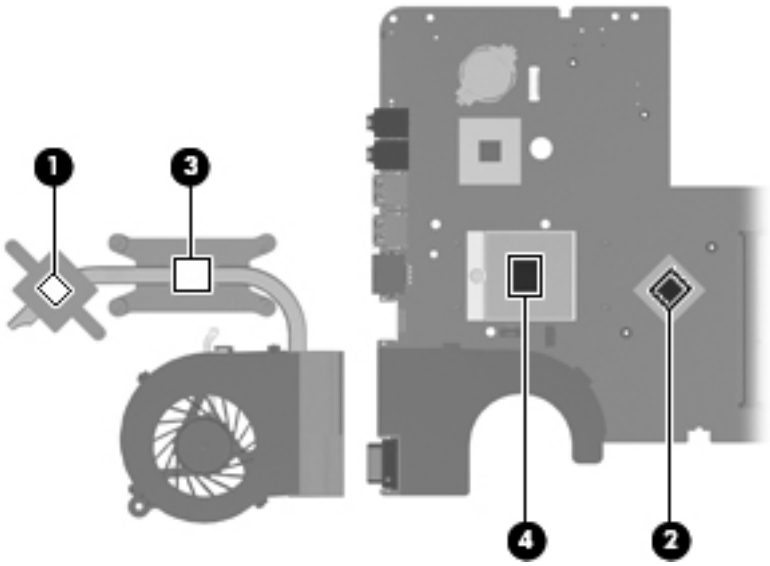
For computer models with the AMD processor, thoroughly clean the thermal material from the surface of the fan/heat sink assembly **(1)** and **(3)**, and the processor **(2)** and Northbridge chip **(4)** each time the fan/heat sink assembly is removed.



Thermal pads and thermal paste must be installed on all surfaces before the fan/heat sink assembly is reinstalled.

NOTE: Thermal pads and thermal paste are included with all fan/heat sink assembly, system board, and processor spare part kits.

For computer models with the Intel processor, thoroughly clean the thermal material from the surface of the fan/heat sink assembly **(1)** and **(3)**, and the Northbridge chip **(2)** and processor **(4)**, each time the fan/heat sink assembly is removed.



Thermal pads and thermal paste must be installed on all surfaces before the fan/heat sink assembly is reinstalled.

NOTE: Thermal pads and thermal paste are included with all fan/heat sink assembly, system board, and processor spare part kits.

Reverse this procedure to install the fan/heat sink assembly.

Processor

NOTE: The processor spare part kits include replacement thermal material.

Description	Spare part number
Intel Mobile Celeron 925 processor (2.3 GHz, 1-MB L3 cache, 800 MHz)	636636-001
Intel Celeron 900 processor (2.2 GHz)	534419-001
Intel Pentium T4500 processor (2.3 GHz)	591880-001
Intel Celeron T3500 processor (2.1 GHz)	625830-001
AMD V-160 processor (2.4 GHz, 512-MB L2 cache, 1066 MHz, 3.2 GT/s--single-core 25 W	636634-001
AMD V140 processor (2.3 GHz, 512-MB, L2 cache, 1066 MHz, 3.2 GT/s)—single-core 25 W	616333-001
AMD Athlon II N370 processor (2.5 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)--dual-core 35 W	634686-001
AMD Athlon II N350 processor (2.4 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 35 W	616334-001
AMD Athlon II P360 processor (2.3 GHz, 1 MB L2 cache, 3.6 GT/s)--dual-core 25 W	636635-001
AMD Athlon II P340 processor (2.2 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 25 W	616343-001
AMD Athlon II P320 processor (2.1 GHz, 1-MB L2 cache, 1066 MHz, 3.2 GT/s)—dual-core 25 W	594165-001

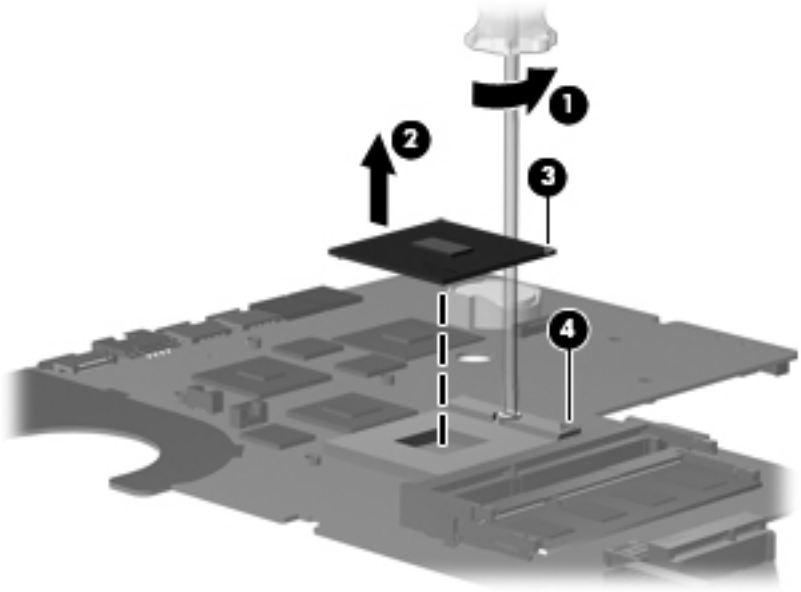
Before removing the processor:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn on the computer, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the following components:
   a. Remove the battery (see Battery on page 36)
   b. Hard drive (see Hard drive on page 37)
   c. WLAN module (see WLAN module on page 42)
   d. Memory module (see Memory module on page 44)
   e. Optical drive (see Optical drive on page 39)
   f. Keyboard (see Keyboard on page 46)
   g. Top cover (see Top cover on page 49)
   h. Display assembly (see Display assembly on page 59)
   i. System board (see System board on page 66)
   j. Fan/heat sink assembly (see Fan/heat sink assembly on page 71)

Remove the processor:

1. Turn the processor locking screw **(1)** one-half turn counterclockwise until you hear a click.
2. Lift the processor **(2)** straight up and remove it.

NOTE: The gold triangle **(3)** on the processor must be aligned with the triangle icon **(4)** embossed on the processor socket when you install the processor.



Reverse this procedure to install the processor.

5 Setup Utility

Computer Setup

To view the drives installed on the computer, select **Start > Computer**.

On models with a secondary hard drive (drive D), the optical drive becomes drive E. The next drive added to the system, such as a new USB drive, is assigned the next available drive letter.

Starting Setup Utility

Setup Utility is a ROM-based information and customization utility that can be used even when the operating system is not working.

The utility reports information about the computer and provides settings for startup, security, and other preferences.

To start Setup Utility:

Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message appears in the lower-left corner of the screen, press the f10 key.

– or –

1. Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message appears in the lower-left corner of the screen, press the esc key.
2. When the Startup Menu appears, press the f10 key.

Using Setup Utility

Changing the language of Setup Utility

The following procedure explains how to change the language of Setup Utility. If Setup Utility is not already running, begin at step 1. If Setup Utility is already running, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message appears in the lower-left corner of the screen, press the f10 key.

   – or –

   Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message is appears in the lower-left corner of the screen, press the esc key. When the Startup Menu displays, press the f10 key.

2. Use the arrow keys to select **System Configuration > Language**, and then press the enter key.

3. Use the arrow keys to select a language, and then press enter key.
4. When a confirmation prompt with your language selected displays, press the enter key.
5. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press the enter key.

Changes go into effect immediately.

Navigating and selecting in Setup Utility

Setup Utility does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a list or to toggle a field, for example an Enable/Disable field, use either the arrow keys or the f5 or f6 keys.
- To select an item, press the enter key.
- To close a text box or return to the menu display, press the esc key.
- To display additional navigation and selection information while Setup Utility is open, press the f1 key.

Displaying system information

The following procedure explains how to display system information in Setup Utility. If Setup Utility is not open, begin at step 1. If Setup Utility is open, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the f10 key.

   – or –

   Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the esc key. When the Startup Menu displays, press the f10 key.
2. Select the **Main** menu. System information such as the system time and date, and identification information about the computer is displayed.
3. To exit Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press the enter key.

Restoring default settings in Setup Utility

The following procedure explains how to restore Setup Utility default settings. If Setup Utility is not already running, begin at step 1. If Setup Utility is already running, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the f10 key.

   – or –

   Open Setup Utility by turning on or restarting the computer. When the Press the ESC key for Startup Menu message displays in the lower-left corner of the screen, press the esc key. When the Startup Menu appears, press the f10 key.

2. Use the arrow keys to select **Exit > Load Setup Defaults**, and then press the enter key.

3. When the Setup Confirmation appears, press the enter key.

4. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press the enter key.

Setup Utility default settings go into effect when the computer restarts.

NOTE: Password, security, and language settings are not changed when you restore the factory default settings.

Exiting Setup Utility

You can exit Setup Utility with or without saving changes.

- To exit Setup Utility and save changes from the current session:

  If the Setup Utility menus are not displayed, press the esc key to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press the enter key.

- To exit Setup Utility without saving changes from the current session:

  If the Setup Utility menus are not displayed, press the esc key to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press the enter key.

After either choice, the computer restarts.

Setup Utility menus

The menu tables in this section provide an overview of Setup Utility options.

NOTE: Some of the Setup Utility menu items listed in this chapter might not be supported by the computer.

Main menu

Select	To do this
System information	• View and change the system time and date. • View identification information about the computer. • View specification information about the processor, memory size, system BIOS, and keyboard controller version (select models only).

Security menu

Select	To do this
Administrator password	Enter, change, or delete an administrator password.
Power-On password	Enter, change, or delete a power-on password.

System Configuration menu

Select	To do this
Language Support	Change the language of Setup Utility.
Button Sound (select models only)	Enable/disable the capacitive button tapping sound.
Virtualization Technology (select models only)	Enable/disable the processor Virtualization Technology.
Processor C6 State (select models only)	Enable/disable the processor C6 sleep state.
Fan Always On	Enabled/disable Fan Always On. When enabled, the computer fan will always be on.
Action Keys Mode	Enable/disable Action Keys Mode.
Boot Options	Set the following boot options: • POST hotkey delay (sec.)—Set the delay for the f1, f2, f9, f10, f11, and f12 functions of Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20). • CD-ROM Boot—Enable/disable boot from CD-ROM. • Floppy Boot—Enable/disable boot from diskette. • Internal Network Adapter Boot—Enable/disable boot from the internal network adapter. • Boot Order—Set the boot order for: ◦ Notebook Hard Drive ◦ Internal CD/DVD ROM Drive ◦ USB Diskette on Key/USB Hard Disk ◦ USB CD/DVD ROM Drive ◦ USB Floppy ◦ Network Adapter

Diagnostics menu

Select	To do this
Hard Disk Self Test	Run a comprehensive self-test on the hard drive. **NOTE:** On models with two hard drives, this menu option is called the **Primary Hard Disk Self Test**.
Secondary Hard Disk Self Test (select models only)	Run a comprehensive self-test on a secondary hard drive.
Memory Test	Run a diagnostic test on the system memory.

6 Specifications

Computer specifications

Dimensions	
Depth	**24.7 cm** (9.7 in)
Width	**37.4 cm** (14.7 in)
Height (front to rear)	**3.3 cm to 3.8 cm** (1.3 to 1.5 in)
Weight (lowest weight configuration)	**2.54 kg** (5.59 lbs)
Input power	
Operating voltage	18.5 V dc @ 4.74 A – 90 W
Operating current	4.74 A
Temperature	
Operating (not writing to optical disc)	**0°C to 35°C** (32°F to 95°F)
Operating (writing to optical disc)	**5°C to 35°C** (41°F to 95°F)
Nonoperating	**-20°C to 60°C** (-4°F to 140°F)
Relative humidity	
Operating	10% to 90%
Nonoperating	5% to 95%
Maximum altitude (unpressurized)	
Operating	**-15 m to 3,048 m** (-50 ft to 10,000 ft)
Nonoperating	**-15 m to 12,192 m** (-50 ft to 40,000 ft)

NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures.

39.6-cm (15.6-in) display specifications

Dimensions	
Height	**21.0 cm** (8.27 in)
Width	**35.9 cm** (14.1 in)
Diagonal	**39.6 cm** (15.6)
Number of colors	Up to 16.8 million
Contrast ratio	300:1 (typical)
Brightness	200 nits (typical)
Pixel resolution	
Pitch	0.259 × 0.259 mm
Format	1280 × 800; HD: 1366 × 768
Configuration	RGB vertical stripe
Backlight	LED or CCFL
Character display	80 × 25
Total power consumption	4.0 W
Viewing angle	±40° horizontal, +120/-40° vertical (typical)

Hard drive specifications

	320 GB*	250 GB*	160 GB*
Dimensions			
Height	**9.5 mm**	**9.5 mm**	**9.5 mm**
Width	**70 mm**	**70 mm**	**70 mm**
Weight	**101 g**	**101 g**	**102 g**
Interface type	SATA	SATA	SATA
Transfer rate	300 MB/sec	100 MB/sec	100 MB/sec
Security	ATA security	ATA security	ATA security
Seek times (typical read, including setting)			
Single track	1.5 ms	3 ms	3 ms
Average	12 ms	13 ms	13 ms
Maximum	22 ms	24 ms	24 ms
Logical blocks	625,142,448	495,702,655	317,249,699
Disc rotational speed	7200 rpm	7200 rpm	7200 rpm
Operating temperature	**5°C to 55°C**	**5°C to 55°C**	**5°C to 55°C**
	(41°F to 131°F)	(41°F to 131°F)	(41°F to 131°F)

NOTE: *1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less. Actual drive specifications may differ slightly.

NOTE: Certain restrictions and exclusions apply. Contact technical support for details.

DVD±RW SuperMulti Double-Layer Drive with LightScribe specifications

Applicable disc	
Read	CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD +RW, DVD-RAM
Write	CD-R and CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM
Random access time	
DVD	< 230 ms
CD	< 175 ms
Cache buffer	2 MB
Data transfer rate	
24X CD-ROM	3,600 KB/sec
8X DVD-ROM	10,800 KB/sec
24X CD-R	3,600 KB/sec
16X CD-RW	2,400 KB/sec
8X DVD+R	10,800 KB/sec
4X DVD+RW	5,400 KB/sec
8X DVD-R	10,800 KB/sec
4X DVD-RW	5,400 KB/sec
2.4X DVD+R(9)	2,700 KB/sec
5X DVD-RAM	6,750 KB/sec
Transfer mode	Multiword DMA Mode

7 Backup and recovery

Windows 7 backup and recovery

To protect your information, use Windows Backup and Restore to back up individual files and folders, back up your entire hard drive (select models only), create system repair discs (select models only), or create system restore points. In case of system failure, you can use the backup files to restore the contents of your computer.

Windows Backup and Restore provides the following options:

- Creating a system repair disc (select models only)
- Backing up individual files and folders
- Creating a system image (select models only)
- Scheduling automatic backups (select models only)
- Creating system restore points
- Recovering individual files
- Restoring the computer to a previous state
- Recovering information using recovery tools

NOTE: For detailed instructions, perform a search for these topics in Help and Support.

NOTE: In case of system instability, HP recommends that you print the recovery procedures and save them for later use.

Backing up your information

Recovery after a system failure is as complete as your most current backup. You should create system repair discs (select models only) and your initial backup immediately after software setup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup. The system repair discs (select models only) are used to start up (boot) the computer and repair the operating system in case of system instability or failure. Your initial and subsequent backups allow you to restore your data and settings if a failure occurs.

You can back up your information to an optional external hard drive, a network drive, or discs.

Note the following when backing up:

- Store personal files in the Documents library, and back it up regularly.
- Back up templates that are stored in their associated programs.

- Save customized settings that appear in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to reset your preferences.

  To create a screen shot:

  1. Display the screen you want to save.
  2. Copy the screen image:

     To copy only the active window, press **alt+fn+prt sc**.

     To copy the entire screen, press **fn+prt sc**.
  3. Open a word-processing document, and then select **Edit > Paste**.

     The screen image is added to the document.
  4. Save the document.

- When backing up to discs, use any of the following types of discs (purchased separately): CD-R, CD-RW, DVD+R, DVD+R DL, DVD-R, DVD-R DL, or DVD±RW. The discs you use will depend on the type of external optical drive attached to your computer.

NOTE: DVDs and DVDs with double-layer (DL) support store more information than CDs, so using them for backup reduces the number of recovery discs required.

- When backing up to discs, number each disc before inserting it into the external optical drive attached to your computer.

To create a backup using Backup and Restore, follow these steps:

NOTE: Be sure that the computer is connected to AC power before you start the backup process.

NOTE: The backup process may take over an hour, depending on file size and the speed of the computer.

1. Select **Start > All Programs > Maintenance > Backup and Restore**.
2. Follow the on-screen instructions to set up your backup, create a system image (select models only), or create a system repair disc (select models only).

NOTE: Windows includes the User Account Control feature to improve the security of your computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to Windows Help and Support for more information.

Performing a recovery

In case of system failure or instability, the computer provides the following tools to recover your files:

- Windows recovery tools: You can use Windows Backup and Restore to recover information you have previously backed up. You can also use Windows Startup Repair to fix problems that might prevent Windows from starting correctly.
- f11 recovery tools: You can use the f11 recovery tools to recover your original hard drive image. The image includes the Windows operating system and software programs installed at the factory.

NOTE: If you are unable to boot (start up) your computer and you cannot use the system repair discs you previously created (select models only), you must purchase a Windows 7 operating system DVD to reboot the computer and repair the operating system. For additional information, refer to the “Using a Windows 7 operating system DVD (purchased separately)” section in this guide.

Using the Windows recovery tools

To recover information you previously backed up, follow these steps:

1. Select **Start > All Programs > Maintenance > Backup and Restore**.
2. Follow the on-screen instructions to recover your system settings, your computer (select models only), or your files.

NOTE: Windows includes the User Account Control feature to improve the security of your computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. Refer to Windows Help and Support for more information.

To recover your information using Startup Repair, follow these steps:

CAUTION: Using Startup Repair completely erases hard drive contents and reformats the hard drive. All files you have created and any software installed on the computer are permanently removed. When reformatting is complete, the recovery process restores the operating system, as well as the drivers, software, and utilities from the backup used for recovery.

1. If possible, back up all personal files.
2. If possible, check for the presence of the Windows partition and the HP Recovery partition.

   To check for the Windows partition, select **Start > Computer**.

   To check for the HP Recovery partition, select **Start**, right-click **Computer**, click **Manage**, and then click **Disk Management**.

   NOTE: If the Windows partition and the HP Recovery partition are not listed, you must recover your operating system and programs using the Windows 7 operating system DVD and the *Driver Recovery* disc (both purchased separately). For additional information, refer to the “Using a Windows 7 operating system DVD (purchased separately)” section in this guide.

3. If the Windows partition and the HP Recovery partition are listed, restart the computer, and then press f8 before the Windows operating system loads.
4. Select **Startup Repair**.
5. Follow the on-screen instructions.

NOTE: For additional information on recovering information using the Windows tools, perform a search for these topics in Help and Support.

Using f11

CAUTION: Using f11 completely erases hard drive contents and reformats the hard drive. All files you have created and any software installed on the computer are permanently removed. The f11 recovery tool reinstalls the operating system and HP programs and drivers that were installed at the factory. Software not installed at the factory must be reinstalled.

NOTE: If your computer includes a solid-state drive (SSD), you may not have a recovery partition. Recovery discs have been included for computers that do not have a partition. Use these discs to recover your operating system and software. To check for the presence of a recovery partition, select **Start > Computer**. If the partition is present, an HP Recovery drive is listed in the Hard Disk Drives section of the window.

To recover the original hard drive image using f11, follow these steps:

1. If possible, back up all personal files.
2. If possible, check for the presence of the HP Recovery partition: select **Start**, right-click **Computer**, click **Manage**, and then click **Disk Management**.

   NOTE: If the HP Recovery partition is not listed, you must recover your operating system and programs using the Windows 7 operating system DVD and the *Driver Recovery* disc (both purchased separately). For additional information, refer to the “Using a Windows 7 operating system DVD (purchased separately)” section in this guide.

3. If the HP Recovery partition is listed, restart the computer, and then press esc while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen.
4. Press f11 while the “Press <F11> for recovery” message is displayed on the screen.
5. Follow the on-screen instructions.

Using a Windows 7 operating system DVD (purchased separately)

If you are unable to boot (start up) your computer and you cannot use the system repair discs you previously created (select models only), you must purchase a Windows 7 operating system DVD to reboot the computer and repair the operating system. Make sure that your most recent backup (stored on discs or on an external drive) is easily accessible. To order a Windows 7 operating system DVD, go to http://www.hp.com/support, select your country or region, and then follow the on-screen instructions. You can also order the DVD by calling technical support. For contact information, refer to the *Worldwide Telephone Numbers* booklet included with the computer.

CAUTION: Using a Windows 7 operating system DVD completely erases hard drive contents and reformats the hard drive. All files you have created and any software installed on the computer are permanently removed. When reformatting is complete, the recovery process helps you restore the operating system, as well as drivers, software, and utilities.

To initiate recovery using a Windows 7 operating system DVD, follow these steps:

NOTE: This process takes several minutes. Before rebooting, make sure you have changed the legacy boot order in the F10 utility so that the USB CD-ROM drive is the first choice.

1. If possible, back up all personal files.
2. Restart the computer, and then insert the Windows 7 operating system DVD into the external optical drive before the Windows operating system loads.
3. When prompted, press any keyboard key.
4. Follow the on-screen instructions.
5. Click **Next**.
6. Select **Repair your computer**.
7. Follow the on-screen instructions.

Linux backup and recovery

Use the instructions in this section if SUSE Linux SLED 11 is installed on your computer.

To protect your information, back up your files and folders. Then if the system fails, you can restore your important files from copies. You can also use the options listed in this section to restore the operating system and programs that were installed at the factory.

△ **CAUTION:** Using f11 completely erases hard drive contents and reformats the hard drive. All files you have created and any software installed on the computer are permanently removed. The f11 recovery tool reinstalls the original operating system and HP programs and drivers that were installed at the factory. Software, drivers, and updates not installed by HP must be manually reinstalled. Personal files must be restored from a backup.

To recover the original hard drive image using f11, follow these steps:

1. If possible, back up all personal files.
2. Restart the computer, and then press f11 while the “Press <F11> for recovery” message is displayed on the screen.
3. Follow the on-screen instructions.

8 Power cord set requirements

The wide range input feature of the computer permits it to operate from any line voltage from 100 to 120 volts AC or from 220 to 240 volts AC.

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries or regions must meet the requirements of the country or region where the computer is used.

Requirements for all countries or regions

The requirements listed below are applicable to all countries or regions:

- The length of the power cord set must be at least **1.5 m** (5.0 ft) and no more than **2.0 m** (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by each country or region's power system.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

Requirements for specific countries or regions

Country/region	Accredited agency	Applicable note number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
The People's Republic of China	CCC	5
South Korea	EK	4
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

1. The flexible cord must be Type HO5VV-F, 3-conductor, 1.0-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

9 Recycling

Battery

When a battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for computer battery disposal.

Display

⚠ **WARNING!** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

△ **CAUTION:** The procedures in this chapter can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. When you remove these components, handle them carefully.

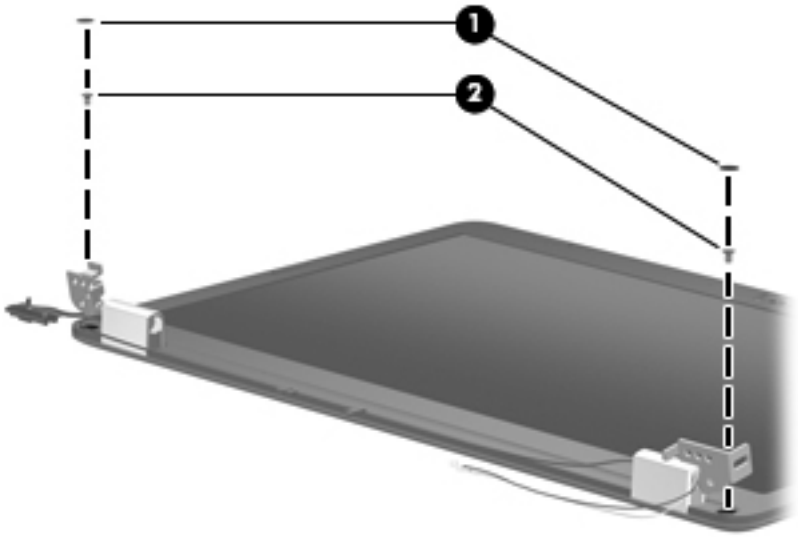
NOTE: **Materials Disposal**. This HP product contains mercury in the backlight in the display assembly that might require special handling at end-of-life. Disposal of mercury might be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities, or see the Electronic Industries Alliance (EIA) Web site at http://www.eiae.org.

This section provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight **(1)** and the liquid crystal display (LCD) panel **(2)**.

NOTE: The procedures provided in this chapter are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Perform the following steps to disassemble the display assembly:

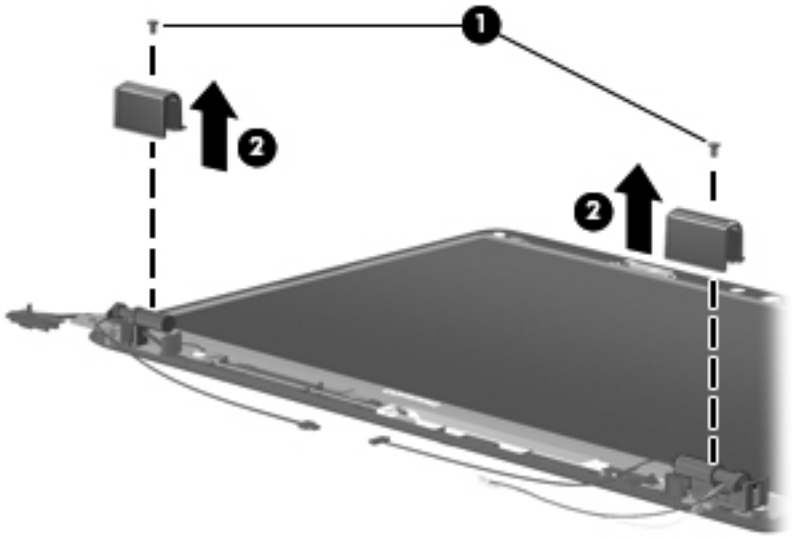
1. Remove all screw covers **(1)** and screws **(2)** that secure the display bezel to the display assembly.



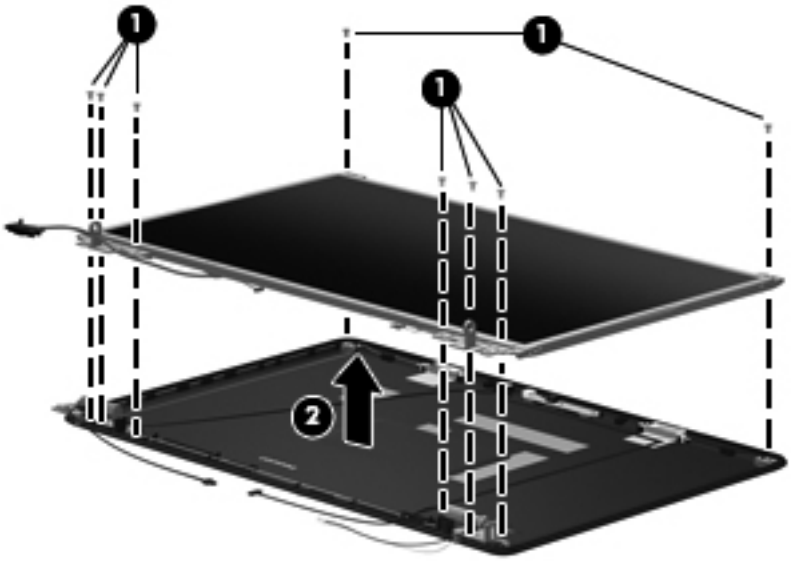
2. Lift up and out on the left and right inside edges **(1)** and the top and bottom inside edges **(2)** of the display bezel until the bezel disengages from the display assembly.

3. Remove the display bezel **(3)**.

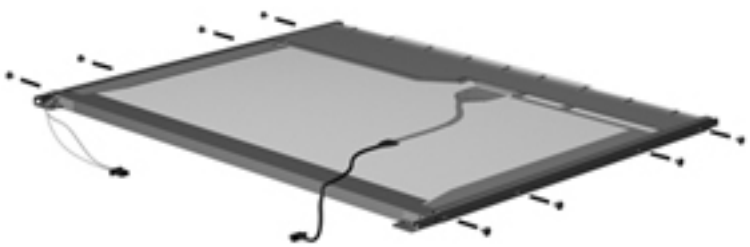
4. Remove the two screws **(1)** that secure each hinge to the display enclosure and lift up to remove the display hinge covers **(2)**.



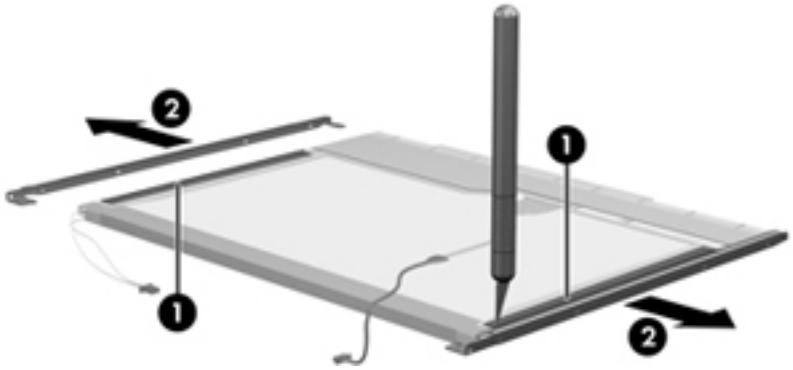
5. Remove all screws **(1)** that secure the display panel assembly to the display enclosure.
6. Remove the display panel assembly **(2)** from the display enclosure.



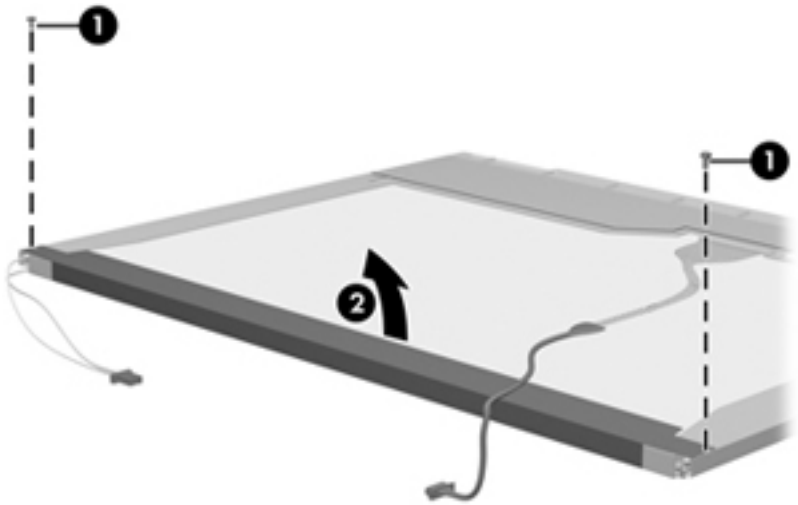
7. Turn the display panel assembly upside down and remove all screws that secure the display panel frame to the display panel.



8. Use a sharp-edged tool to cut the tape **(1)** that secures the sides of the display panel to the display panel frame.
9. Remove the display panel frame **(2)** from the display panel.

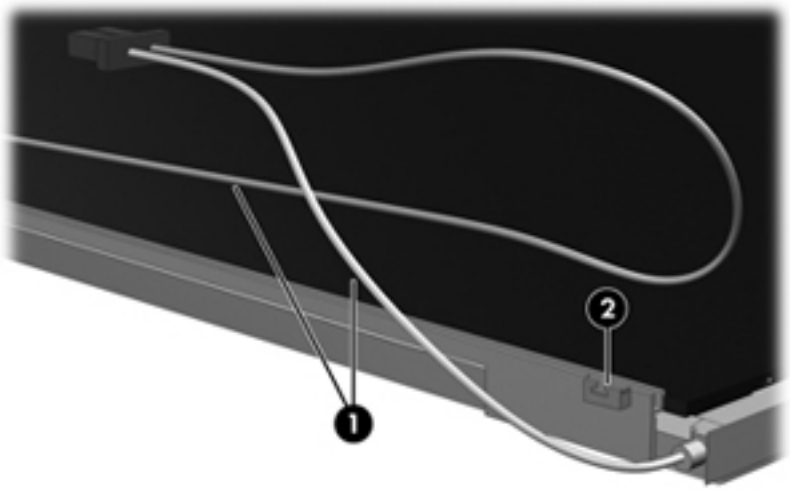


10. Remove the screws **(1)** that secure the backlight cover to the display panel.
11. Lift the top edge of the backlight cover **(2)** and swing it outward.



12. Remove the backlight cover.
13. Turn the display panel right-side up.

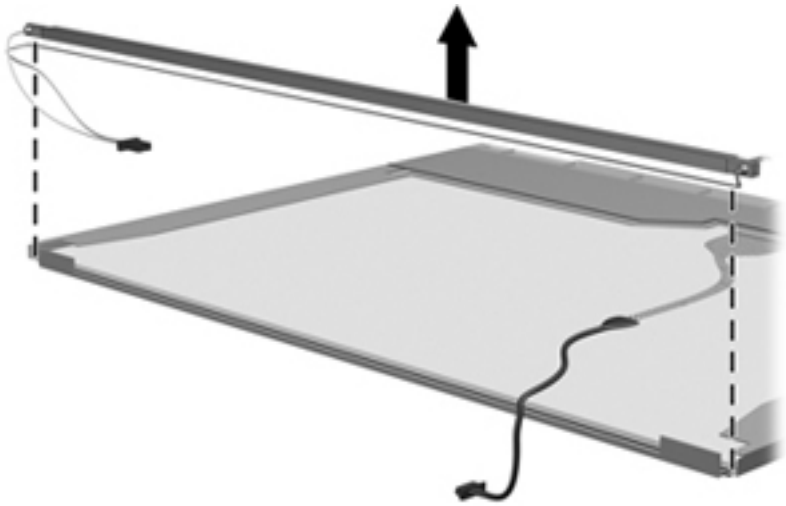
14. Remove the backlight cables **(1)** from the clip **(2)** in the display panel.



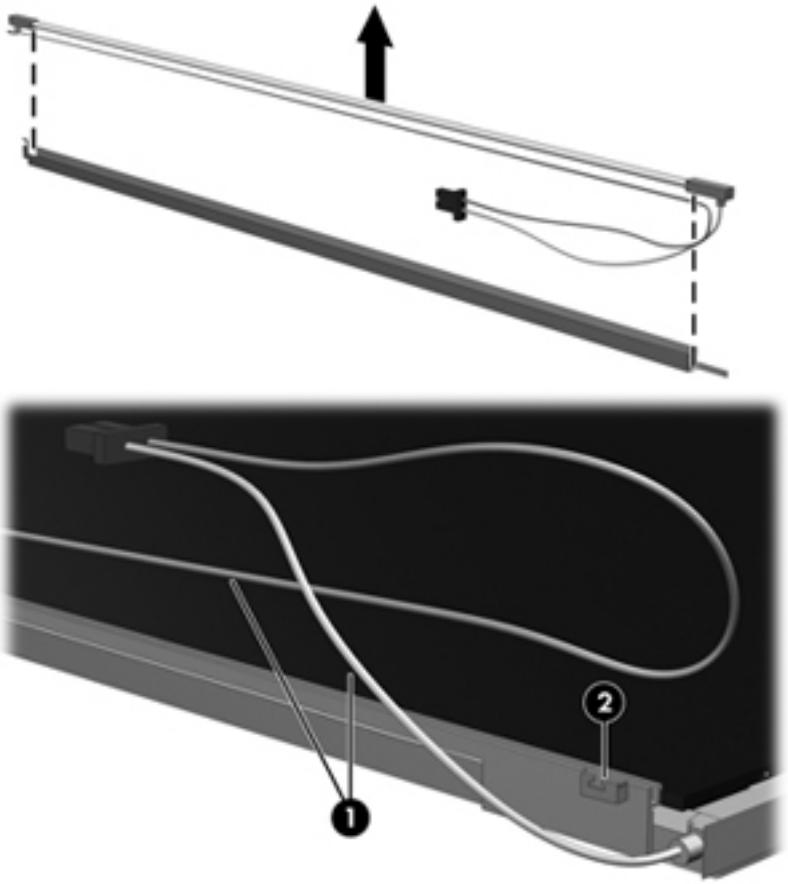
15. Turn the display panel upside down.

16. Remove the backlight frame from the display panel.

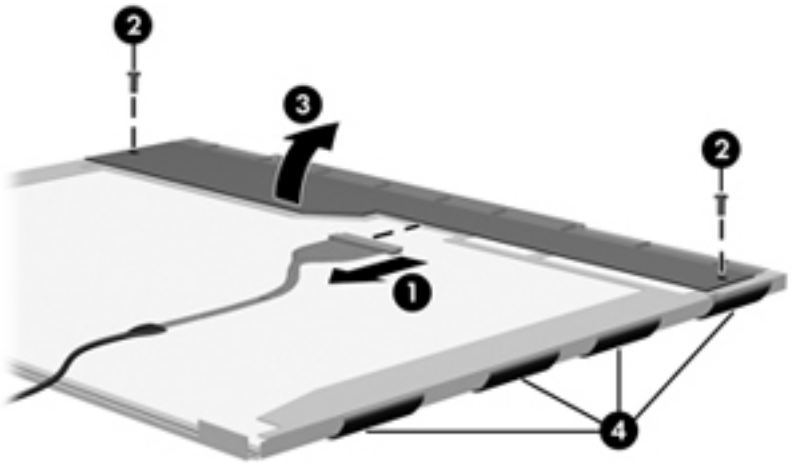
⚠ **WARNING!** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.



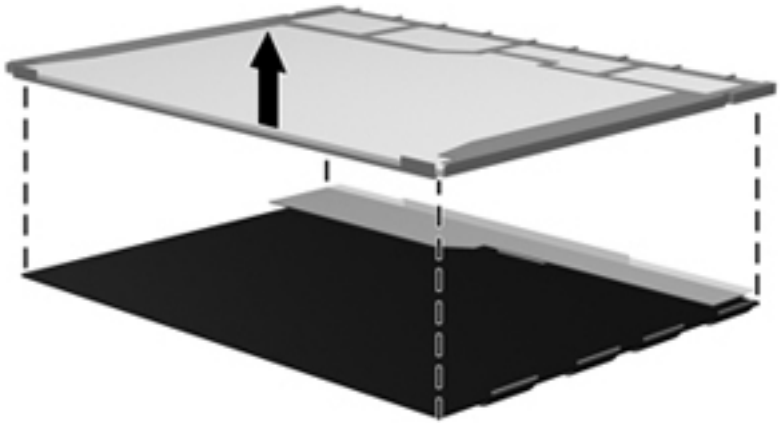
17. Remove the backlight from the backlight frame.



18. Disconnect the display cable **(1)** from the LCD panel.
19. Remove the screws **(2)** that secure the LCD panel to the display rear panel.
20. Release the LCD panel **(3)** from the display rear panel.
21. Release the tape **(4)** that secures the LCD panel to the display rear panel.



22. Remove the LCD panel.



23. Recycle the LCD panel and backlight.

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